

STRUCTURE OF THE PRIMARY ROCKS, AND THEIR METALLIC PRODUCTION.—No. III.

In commencing the discussions on this paper, Mr. John Taylor, jun., said that—

"Although an ardent lover of the science of geology, he felt it an objection to the paper that the author evidently intended to promote a peculiar geological theory of his own, and one which did not appear to be confirmed by recorded facts. He (Mr. Taylor) did not pretend to have examined the structure of these rocks to the same extent as Mr. Hopkins; the only gold districts with which he was personally acquainted were those in Hungary, in the Tyrol, in Virginia, North Carolina, and Wales; but in all those cases he was not aware of the existence of any facts which would lead to a belief in this vertical structure. He thought the author would have great difficulty in showing why, in the gold-bearing regions, all these rocks should be thrown up on end. He was not aware that the great deposits of gold in drift and in alluvial formations, whether in the Ural Mountains, in Brazil, or in the United States of America, had ever heretofore been thus described." There was, however, a practical question connected with this subject, relative to the machinery employed for extracting the gold, which might serve as the basis of a most useful discussion—viz., which were the best mills for grinding hard substances."

Mr. Hawkshaw observed that—

"It had been asserted that the paper was only intended to promulgate a theory, whereas the author maintained that he had given the result of his own observation and experience in the districts spoken of. Mr. (Mr. Hawkshaw) conceived that it was competent for any gentleman to submit facts to the meeting, and he thought no objection ought to be raised upon the ground that it had been decided elsewhere that Mr. Hopkins's views were erroneous, or the observations inaccurate. In the earlier part of his life, he (Mr. Hawkshaw) had himself been engaged in mining operations (in South America), and had found deviations from the ordinary stratification laid down by geologists, and even in England new facts were continually recorded. It was a somewhat arbitrary solution to refer all positions of the sedimentary rocks to the upheaving of the primary series, and the protrusion of granite; for he had seen instances of sedimentary rocks lying upon granite in a manner which could not be explained by these causes alone."

Mr. Warington Smyth said:—

"He fully agreed in the opinion that this was strictly a theoretical paper. The author complained that the geologists were not engineers, and the engineers not geologists. This might to a great extent be true, but it did not appear that the present paper would improve the position, as certainly the theory propounded would not be generally received by either geologists or engineers. The cleavage to which attention was invited was a well-known phenomenon, and had been admirably described by Sedgwick 30 years ago. In fine, as gold ores used to be called the *irritaments maiorum*—the incentives to social evils—so, of late years, they had been brought upon science a host of bad undertakings, bad observations, and bad theories."

Professor Tennant said:—

"The section of the earth's crust exhibited by geologists (and condemned by Mr. Hopkins), was not intended to be an accurate section, but merely an ideal one."

Mr. W. Smyth thought—

"It might not be inexpedient to sketch roughly a couple of diagrams, showing the phenomena of stratification, and cleavage of the rocks commented upon. He considered the meeting was indebted to Mr. Hopkins for having brought a matter of such practical importance before the institution; and whilst admitting that many of his observations were of a certain value for the districts named, he could not allow it to be inferred that the phenomenon prevailed all over the world."

Mr. Musket said:—

"He was glad to hear an acknowledgment of the practical value of this subject, by which a knowledge of the gold-bearing varieties of primary rocks would be elicited. It had been stated that this theory was connected with the direction of the different mountain ranges, but it was not necessary that all these ridges should be found in the same direction, because it was shown, by Mr. Hopkins's section, that the direction of the structure was entirely independent of the bearing of the mountains. It had been asserted that Mr. Hopkins, who, for the last 20 or 30 years, had probably more experience than any other man in gold-bearing rocks, and who had superintended the working of one of the very few gold mines that had realised a profit, had brought forward these sections to support a theory of his own, and that they were purely ideal. This structure had been observed by Humboldt, Sedgwick, and De la Beche, who all agreed that this north and south cleavage would probably lead to the discovery of some great natural law. It was the most unfortunate thing that men always disliked to receive new truths, unless presented in an agreeable and pre-conceived form; and so happened that the observation of the facts brought forward in the paper overthrew the generally accepted theory. The sections exhibited by Mr. Hopkins were not ideal, like those presented by speculative geologists, but were the result of personal observation. He believed they would give a better knowledge of the structure of the globe than had been hitherto possessed, and would lead to real results of the highest practical importance."

Professor Tyndall said:—

"He could not help thinking it was a rather hazardous assertion, with regard to the slate formation in North Wales, that it was a subject of which geologists were entirely ignorant. The author deserved credit for ingenuity, but ingenuity could not be substituted for the patient labour necessary for the attainment of truth. He entirely dissented from the speculations of the author on terrestrial magnetism."

Mr. Hopkins's reply to his opponents will be given in our next.

It affords us great pleasure to state that this question, "On the Vertical Structure of the Primary Rocks, and their Metalliciferous Bands," has created very great interest in America, Australia, the Cape of Good Hope, and Sweden; and we are promised most valuable reports from those countries, which will fully confirm Mr. Hopkins's general description of the primary series, which we shall insert in our Journal from time to time.

DIAMOND HARBOUR AND CALCUTTA RAILWAY.—It has been so long a popular outcry that the East India Company has legislated selfishly and unwisely for India, that it requires some confidence to combat the delusion. There was never an accusation more absurd. The company may be said to have been cradled in trial, and centuries passed over before maturity of triumph attended its councils, and enforced its decrees. At first as obscure factors for a stranger few, they arose to be the delegated rulers of 80,000,000 souls. So gradual a development of power was never attained on so grand a scale by any public body, and though peaceful commerce gave it first footing in the soil, foreign ambition soon taught it that by the sword alone could its existence be sustained. Conquest after conquest was the result, and achievements of stupendous magnitude were performed, often in defiance of public opinion, and at the risk of being impeached by those who were ignorant of the dangers by which British sway in India has been enveloped. The company had consolidated an empire in the East more extensive than the Mogul emperors enjoyed in the palmiest times. But, with a wisdom learned in the bitter field of experience, it was not above being guided by lessons of the past, all of which show that although war may win kingdoms, commerce alone can retain them. It was, however, no easy task to open new veins of industry among a varied population, constitutionally enervated, fatalists from principle, and over whom the successive invasions of twenty centuries had scarcely left any perceptible change, so little, indeed, that despotism had left their numbers comparatively undiminished, so abundant amongst them were the elements of reproduction; but reproduction of such a class that always augmented, but never increased. Unity of purpose was to them unknown, and, like the innumerable titans into which their land was broken, they were ready for every spring time of conspiracy, or harvest of death. The company altered this sad social disorganisation by many wise decrees, the most prominent of which was its decision to test the availability of railroads; and when engineers, sent from England for that purpose, proved the unusual practicability by which roads could be constructed, it guaranteed to companies offered suitable stimulants to capital that commerce, like a river long pent up, would find its outlet far and wide. India, required, at the most moderate calculation, 10,000 miles of railroad, and 50,000 miles of the common kind. Of the absolute necessity of this was the company fully aware. Indeed, its knowledge on the subject admits of no doubt whatever, and yet so confident is it of pre-eminent success in all the lines it shall sanction, that it is increasing the facilities of construction by every possible means in its power, yet so warily guarded against mischance that it looks back to its legislation on railways with a conscious gratification. Islaia in this respect are on the rightful course, and the consequence has been that characteristic prosperity has accrued to every project connected with developing by railways the resources of Hindostan. Calcutta is the centre from which the majority of all these resources must derive their relative value to England. Every speculation merging into, or springing from, that metropolis are yearly augmenting in consideration and amount, and like tributaries to the Ganges, distribute their fair proportion of fertilizing wealth. Hitherto vast colossal fortunes to fortunate commanders, or intriguing financiers, have been drained from India; but that day of individual aggrandizement has passed away, and for the future rough logs, with longitudinal timber and plain bars, or more costly permanent ways, shall be the means to win inheritance and distinction. Golconde was a mine for many ages, until its richest deposits were used up, and the Brazils stand supreme in proceeds of gems. Ormus, no doubt, will in time, when diving arrive at perfection, be totally rifled of pearls, but in the meantime Diamond Harbour, on the Hoogly, is a gem whose water, in the commercial sense of the word, no time can impair. Without at present entering into any statistical details of the traffic connecting that river with the capital and interior, the number of barkeries, loaded bullocks, Government daks, foot passengers, conveyances too and fro between the maritime districts and the 14,000,000 acres covered with the sugar cane country but a limited estimate of what Burwan alone could raise for home consumption.

RESOURCES OF INDIA.—An interesting little pamphlet, on the practicability and advantage of opening up a communication between the east coast of the peninsula of India and the cotton districts of Nagapore, by means of steam-boats on the River Godavary, has been compiled by Lieut.-Col. Grimes, late Madras Army; and from the importance which naturally attaches itself to any account of the resources of the country, or to systems propounded for improving its condition, the work may be considered as worthy of careful perusal, as many suggestions, apparently of a very practical character, are made. Messrs. W. H. Allen and Co., of Leadenhall-street, are the publishers.

"On the Vertical Structure of the Primary Rocks, and the General Character of their Gold-Bearing Varieties." By ERAN HOPKINS, F.G.S. Edited by Charles Manby, F.R.S., M.Inst.C.E., secretary. Read at the Institute of Civil Engineers.

We are in possession of very masterly reports, with sections, lately received, from the gold regions of Virginia, Australia, and the mineral districts of Norway and Sweden, which confirm most fully the vertical structure represented by Mr. Hopkins; therefore, this is no theory, but a matter of fact, well known in distant regions.

MINING IN JAMAICA.

We have received several interesting reports respecting the progress of Mining in Jamaica up to July 26. One writer states—"As if to give singular force to the unfavourable view of mining in Jamaica, the Metcalf Company was formed under circumstances of most exaggerated promise: some years have passed since we perused the reports from the Job's Hill Mine, on the faith of which, when brought to the notice of English speculators, the shares of the Metcalf Company rose suddenly up to 19/-, but some of the facts there stated are strongly impressed on our memory. In one of these reports from the mine agent, Job's Hill was spoken of as 'a mountain of copper,' from which it was said one white miner, with two native labourers, could break out two tons of copper, of 40 per cent. produce, in six hours.

Nor did the Job's Hill Mine stand alone in failure. The rage for mining soon extended itself, and before many months had expired the Liguanea, the Sue River, the Jamaica, and, finally, the Port Royal companies succeeded the Metcalf in hopeless and irredeemable failure. We believe that every one of these companies failed not because they had not mines which, fairly worked, would eventually have proved valuable properties, but simply because the proprietary body, all or most of whom were non-resident, had no genuine confidence in the enterprise, and partook of the prejudices which Cornish interests found it desirable to establish against Mining in Jamaica.

The present success of the Clarendon Mines is the best evidence that can be adduced to the blindness which produced the abandonment of the ventures to which we have referred. Had the Clarendon Mines, like the others, been owned almost wholly by English capitalists, and had the interest of all concerned in this promising enterprise been dependent on the reports of a Cornish mine agent, influenced by Cornish prejudices, and acting upon certain intelligible Cornish influences, there can be no possible doubt that one of the most promising copper mines in any country, as Stamford Hill undoubtedly is, would have long since been abandoned, and it would have been said of that, as it has been said of Job's Hill, Mount Vernon, and Sue River, that its ores only existed at surface and in bunches.

The Stamford Hill Mine owes its present favourable prospects wholly and exclusively to the steady fat in its ultimate success expressed and acted upon by mining adventurers in Jamaica. Happily for all concerned in it, the local management of its affairs rested in the hands of the Hon. Edward Thompson, a gentleman who had much too large an interest in the enterprise to permit it to be sacrificed to the bad faith of an unscrupulous agent. In this course he was not only seconded by a large body of local shareholders, but his hands were greatly strengthened by the rapid progress towards success of another mining association, which bore too near a relation to the Clarendon Company's mines not to be without effect in producing confidence amongst the shareholders in England.—we allude to the Wheal Company, whose mine, at Charing Cross, is only distant a little more than three quarters of a mile, in the direct line of its lodes from the line of Stamford Hill. Of this mine all that need be now said is, that it has already taken its place amongst established mines, and that it needs only energetic prosecution, and a liberal but proper economical expenditure of money, to render it a mine of high value. The Stamford Hill Mine prospers its works with increasing success.

The works at Charing Cross are advancing rapidly. Other companies of local formation are prosecuting works of the highest promise, with almost a certainty of early accomplishment. At Salisbury Plain, the Ellerlie and Bardowie Company have cut into a fine branch of yellow ore, at great depth, from which they are extracting rich ore, and look forward by the end of the month to the intersection of the main lode in the end of their deep cross-cut. The Rio Grande Company only await the completion of arrangements for extending the capital of the company in order to follow up the rich lodes which Mr. Hawkins, on his survey, pronounced equal to the production of 100 tons of ore per month.

Afterward mining never looked so favourable as it does at this moment in Jamaica. Our copper is found in lodes as regular as any ever seen in Cornwall or elsewhere. Some fine samples of ore had been sent to Kingston from Charing Cross, the property of the Wheal Jamaica Company. These samples were taken out of the end of the 50, and are of singular richness and beauty. When it is considered that the spot which yielded this ore is not less than 430 feet from the crest of the hill, it will be admitted that the idea of Jamaica copper being wholly on the surface is proved to be a fallacy. In fact, nothing can surpass the regularity and continuity of the lode at Charing Cross, which is much improved in depth as to have rendered its ultimate success no longer a matter of speculation."

Mr. E. C. Lewis, of Kingston, in writing upon the above subject, says:—

"Another trip to our metalliferous hills has afforded further proof of this being a mining country, if such be necessary to awaken us to a sense of its importance, even in what is generally considered as our recent limestone formation. Thus go east, west, or north proofs exhibit themselves, and within half a score miles of this city, that mineral wealth abounds in more than one locality that of itself, if properly developed, might gladden the hearts of thousands amongst us in all probability. A piece of very compact and rich copper ore, free from matrix, having been presented to me, I was curiously enough to ascertain the locality from whence it emanated, as usual, but particularly so in this instance, when I learnt that it was from a limestone district. I was consequently politely shown over a considerable portion of a rather extensive property, on which it was discovered—viz., Mount Salmus in St. Andrew's—and occupied the greater portion of the day, but without being able to visit all the indications, or near, although sufficient was visible to satisfy me of the highly metalliferous formation, not in the recently formed limestone, however, be assured, but in a more congenial matrix of metal-producing rocks, and a more primitive formation of granite trap and porphyritic structure; and at the junction of those rocks with the more recent a phenomenon in geology occurs, highly interesting—an alumina, or a felspar, as miners would term it, of a peculiar saponaceous consistency, with properties which I may hereafter more fully allude to, immediately connected with a mass of red sandstone. The appearance of several lodes, as near as could be ascertained without being further opened, are very encouraging. The green and blue carbonates abound with gossans, malachites, yellow sulphuret, purple ore, &c., blend, sulphate of iron, iron pyrites, &c., I may add, to all appearances, minerals of a richer nature also, and worthy of further exploration. And I trust ere long, as I am informed, that a few spirited individuals have decided on forming a local company for the purpose, which is cheering; I have my best wishes for their success, and very little doubt thereof: if they adopt a proper course, they may not possibly, but I am inclined to think that it will not be the fault of the mines if they do not prove them to be such. Whilst upon the subject, I would allude to a very fine specimen I lately met with from Charing Cross (Wheal Company) containing quartz, and a rich specimen of crushed ore from Stamford Hill, which I am inclined to know, may be considered as copper pyrites, the value of the presence of which is well known to scientific miners. Suffice it to say, that the poor sample of sulphur from Cuba that accompanied it bore no comparison. My object is not to induce an unprofitable or ruinous waste of capital, but to direct attention to the subject of the mineral wealth of this island, which, if properly developed, may yet restore this lovely Isle, I hope, to its former prosperous condition."

The following report is from the Wheal Jamaica Copper Company:—Schute's stope in back of No. 2 is being worked by four men; the lode is from 3 to 4 feet wide, and producing from 15 cwt. to 1 ton of ore per fm. The stope in the bottom of No. 3 is being worked by four men; the lode is from 4 to 5 feet wide, and producing from 12 to 15 cwt. of ore per fm. Ellison's winze is being sunk upon the 50 by four men, and is producing from 5 to 10 cwt. of ore per fm. The 50 is being driven by six men; the lode at present is from 5 to 6 feet wide, with a branch of ore from 8 to 10 inches thick, and producing from 15 cwt. to 1 ton of ore per fm. The mine, on the whole, is looking well throughout.—G. B. NETHERSOLE.

The 40 tons of ore from Wheal Jamaica, per Eliza Killick, has been crushed and assayed, and gives as follows:—No. 1, 23.68 per cent.; Nos. 2 and 3, amalgamated,

12.08 per cent. Considering that this ore has been merely hand-dressed, no machinery having been yet erected, the result may be considered better than could be expected.

MINING NOTABILIA.

[EXTRACTS FROM OUR CORRESPONDENCE.]

WEST WHEEL VIRGIN has considerably improved, and throughout the prospects are looking well. The sale of tin has more than paid the working cost, leaving a large quantity of tinstuff still on the floors, which could not be stamped for want of water. There is every reason to believe that this mine, from its present appearance, will prove productive in depth; and it is to be hoped that, ere long, the water will be forced to the bottom. There is no want of miners, as there are several calling every day, seeking for employment, and many who worked in the mine last summer, more convincing than this cannot possibly be conceived. They nobly divested itself of every advantage, and undertook every possible and pecuniary risk, reserving alone to itself the right of judgment in what direction, and through what portions of the territory, such enterprises should extend. It did not grudgingly undertake the work, for experience amply testifies that where the governing body became contractors failure was the natural result. A long catalogue of well-intentioned mishaps by the English Government too strongly corroborate this fact. Commerce had been restricted by monopoly in India, but no sooner had private speculation and public associations offered suitable stimulants to capital that commerce, like a river long pent up, would find its outlet far and wide. India, required, at the most moderate calculation, 10,000 miles of railroad, and 50,000 miles of the common kind. Of the absolute necessity of this was the company fully aware. Indeed, its knowledge on the subject admits of no doubt whatever, and yet so confident is it of pre-eminent success in all the lines it shall sanction, that it is increasing the facilities of construction by every possible means in its power, yet so warily guarded against mischance that it looks back to its legislation on railways with a conscious gratification. Islaia in this respect are on the rightful course, and the consequence has been that characteristic prosperity has accrued to every project connected with developing by railways the resources of Hindostan. Calcutta is the centre from which the majority of all these resources must derive their relative value to England. Every speculation merging into, or springing from, that metropolis are yearly augmenting in consideration and amount, and like tributaries to the Ganges, distribute their fair proportion of fertilizing wealth. Hitherto vast colossal fortunes to fortunate commanders, or intriguing financiers, have been drained from India; but that day of individual aggrandizement has passed away, and for the future rough logs, with longitudinal timber and plain bars, or more costly permanent ways, shall be the means to win inheritance and distinction. Golconde was a mine for many ages, until its richest deposits were used up, and the Brazils stand supreme in proceeds of gems. Ormus, no doubt, will in time, when diving arrive at perfection, be totally rifled of pearls, but in the meantime Diamond Harbour, on the Hoogly, is a gem whose water, in the commercial sense of the word, no time can impair. Without at present entering into any statistical details of the traffic connecting that river with the capital and interior, the number of barkeries, loaded bullocks, Government daks, foot passengers, conveyances too and fro between the maritime districts and the 14,000,000 acres covered with the sugar cane country but a limited estimate of what Burwan alone could raise for home consumption.

GAWTON COPPER MINES.—This mine is now assuming a very favourable position, and commands particular attention, arising from the financial difficulties being overcome, together with the improved state of the mine. The present operations being confined to sinking the engine-shaft another 10 fathoms, at which depth the course of ore discovered in the 24 fm. level, and now intersected in the 36, will fall into the shaft at that point from which large returns of ore may be expected from this part of the mine. The 36 west is being driven on the course of the lode, which is yielding 8 tons per fm. A cross-cut is being driven from this level to the south or main lode, which will be accomplished in about 8 fms. driving. The 34 is being driven on a large lode 8 feet wide, and will yield about 3 to 4 tons per fm.; by continuing this it will reach the junction in 15 fms. driving, at which point a large deposit of ore is fully expected. The stope in the back of this level will yield from 2 to 3 tons of copper ore per fm. A rise is being put up from this to the 10, this will ventilate the mine; the lode will yield 1 ton per fm. The monthly cost will not exceed 200/-, without taking into consideration any return of ore, which is expected will exceed those of the former working. The machinery consists of a powerful water-wheel 45 feet diameter, 6 feet breast, with drawing machine, crusher, &c., capable of taking the mine down 100 fms. below the present depth. A tramway from the dressing-doors to the quay and stores, from which all kinds of material can be had, renders this property of more ordinary value, having cost the former company £12,000/-, all of which is available to the present proprietor, free of debt, with 500/- in favour of the mine. It must be considered a desirable investment, and one that cannot well fail to shortly terminate in a successful result. The shares are in great demand at 30/-, some hundreds having found their way into the hands of the principal men in the locality of the mine, which fact is sufficient to prove the estimation held of this property, and before long will reach the original value, 3/- per share, as expended on the mine. Capts. John Hambley and John Treadaway, in reporting on the settings, state that they had in attendance not less than 100 men out of work. The biddings were very free, and the new bargains were beat down and set for about one-half price. When the mine is better ventilated, they will resume the driving of the 23 and 36 fm. levels with the full number of hands, and commence operations on the shaft.

DESCENT OF MINES IN AUSTRIA.—The following singular method of descending mines is adopted in the salt mines at Hallstein, in the Duremburg, near Salzburg:—The downward galleries run at an angle of 40° to 45°, and are provided with a peculiar mechanical contrivance as the means of descent. Along the sloping surface of the shaft two pieces of wood are fixed, rather more than a foot apart, their upper apparatus much resembles a common ladder, the more so because the longitudinal or side pieces are bound together by steps used for the purpose of ascent. Fixed to the top of this ladder-like frame is a thick strong rope reaching to the bottom, and left loose along the rest of its extent. The following is the mode of descent:—The leatheren apron being carefully adjusted behind, and the right hand armed with its leatheren glove, the parties seat themselves on the polished tramroad, with their legs and feet dangling over its outer sides; the guide having the place of honour in front, then gives the word to grasp the rope firmly but lightly, and he and his followers immediately set off on their rapid slide without stop or stay till the bottom is reached.

"The cord slides swiftly through his gloving hands, And quiesce as lightning on the deck he stands."

The process is rather startling at first, as it is not easy to be free from apprehension in a predicament so novel and so seemingly hazardous, and more particularly as the guides farthing candle scarcely mitigates the darkness, and indeed sometimes goes quite out. Once accomplished, however, the feet is found to be both easy and safe, and willingly undertaken on the next occasion.

EXPLOSIONS IN COAL MINES.

In the report of the Select Committee of the House of Commons, recently appointed to enquire into the cause of the frequent explosions in coal mines, with a view to their prevention in future, it is stated that the deaths from explosions have latterly increased to the fearful number of about 1000 per annum. The first witness examined was Mr. Ingoldsby and Mr. Mather, to authenticate the accuracy of the report of the South Shields Committee. Ventilation by the steam-jet, upon the plan suggested by Mr. Goldsworthy Gurney, its inventor, was the system almost exclusively relied upon by the South Shields Committee for increased security from explosions. Having carefully considered all the evidence at their disposal, the committee are of opinion that any arrangement or fracture of its parts the ventilation was unsatisfactory, and that the two systems which alone could be considered as sufficiently sufficient, the goaves, or old workings, well insulated, and the mine not very deep, appeared capable, with strict attention, of producing a current of air that would be of great reasonable security from explosion; but when the workings were very numerous, as well as remote, and the intensity of the furnace or furnaces required to be raised in order to increase, on any particular emergency, the amount of ventilation, then the furnace not only refused to answer the spur, and to increase ventilation, but the furnace itself, as recommended by Mr. Gurney, and scientifically and practically, from a natural law (discovered by Mr. Gurney, and scientifically and practically recommended) at the bottom of the upcast, as a raveler to the extent of the width of the fire under the boiler, its principal or direct efficiency depended upon the size of cold air could be bodily pushed up the upcast—the amount merely depending on the size of the tube employed, and the pressure of steam.

This power of the steam-jet, although recommended so strongly by the South Shields Committee in 1843, did not appear to have been so extensively introduced, notwithstanding the recommendation of the committee, as to be taken into account by the public. The steam-jet was recommended to the Wheal Company, whose members were unanimous in their opinion that the steam-jet was the most powerful and convenient method for the ventilation of mines. Although a few of the witnesses (two of the most intelligent of the Government inspectors among the number) neither understood the mode in which the steam-jet operated, nor were enabled to form a judgment of its merits, it was generally agreed that it would be a prudent and almost necessary precaution to have a steam-jet system of ventilation.

It was stated that 70 per cent. of the deaths from explosions were occasioned by the explosion of fire-damp, but by the "after-damp" which succeeded it. If the latter was inhaled in its pure state by the miner, it caused immediate death. Since, from the

Original Correspondent.

BESSEMER'S MANUFACTURE OF WROUGHT-IRON WITHOUT EXTRANEous FUEL.

Sir.—It is impossible to doubt the veracity of the late statements made by Mr. Bessemer before the British Association. No man could have ventured a circumstantial narrative of his success in maintaining malleable iron in a fluid condition, by the consumption of a part of its own substance, if the fact were capable of contradiction. On the other hand, this fact, so astonishing when suddenly brought before us, is quite consistent with known chemical science, and might easily have been predicted by any of us, had our nodding and winking faculties been inspired with the wit to think to the purpose. The high temperatures hitherto obtained by the use of coal fuel proceeds, according to the theory, from the liberation of caloric ensuing on the rapid condensation of a volume of oxygen into an equal volume of the denser compound of oxygen and vapour of carbon, constituting carbonic acid gas. A part of the heat evolved by this comparatively small reduction of bulk has to be expended in raising the solid carbon to the gaseous state, and the remaining result is still further diffused by expanding the gas to seven or eight times the original bulk of the oxygen. We have only to compare this condition of facts with the vast condensation which ensues when a volume of oxygen is reduced to the insignificantly fractional bulk of its solid state in an oxide of iron, to appreciate the full force of Mr. Bessemer's application. Heated iron, plunged in pure oxygen, burns, as is universally known, with the creation of inconceivable temperature. The same heated iron in the atmosphere cools with slowly oxidising surface, because the surrounding particles of nitrogen and the act of radiation prevent the temperature of combustion; but we can readily conceive, and might easily have foretold, that a stream of common air, forced into a mass of liquid iron, will there meet with all the conditions requisite to maintain the combination with its oxygen at the temperature of combustion, and realise wherever the blast impinges a heat of unparalleled concentration. The heat does not, like that produced in the combustion of coal, fly off in gases, but remains then and there, where it is generated in and within the substance to which its operation is applied, and the consequence is the facile and manageable fluidity of malleable iron! The heat obtained in the first stage of the process by the combustion of the alloyed and combined carbon of the cast-iron acts with the same maximum of intimate economy. I see only one difficulty which might have startled a practical man, if he had conceived the great idea of this process—viz., the possibility, with any degree of confidence, of keeping the tuyeres open against fluid metal pressing 8 or 10 lbs. to the square inch; but this difficulty to realising the principle, Mr. Bessemer states, and we have no ground to disbelieve him, he has practically overcome, and the whole manipulation appears so devoid of any further drawback, that I do not hesitate to express my conviction that Mr. Bessemer has brought into the world one of the grandest operations ever devised in metallurgy—a truly magnificent process, commanding every requisite of time and circumstance for commercial success. I have repeatedly, in numerous publications, expressed my belief that no great success could ever attend new processes of ironmaking which interfered with the present system of smelting. The established blast-furnace is too convenient, too powerful, and too capable of further development, to be superseded by any retrograde process. It is applicable to all descriptions of iron. The numerous proposed improvements mooted of late for making wrought-iron require materials which are few and far between; in fact, virtually unattainable, and the demand for cast-iron, a product as essential as wrought-iron, must further necessitate the retention of the blast-furnace. Mr. Bessemer's process takes the position of a congruous appendage to its now highly-developed powers.

Cast malleable iron, in the very limited scale on which it has hitherto been produced, has been characterised by excessive red-short, but on the sole of Mr. Bessemer's production this may be entirely altered, or successfully removed. The economic basis he has fixed is so broad that there is room to rear any amount of superstructure. There is no subject in which the results on a large scale more entirely confound the results of the laboratory than the manufacture of iron, probably because there is no manufacture on a scale so large. The success of the new process will rest upon the management of the blast-furnace, and render unnecessary the present wasteful system of manufacturing forge iron for the puddling furnace. This and the refining will be superseded with a vast economy in all branches of the manufacture. After 70 years' use, one of the inventions which has made Britain great is threatened with antiquation, but the grooved roller is likely to remain a little longer. Mr. Bessemer has, I think, invented something equally calculated to stimulate the passions and the devices of the base, the mercenary, and the ungrateful. This discovery throws distinctive light upon many details of the blast-furnace, well known, but never rightly understood; but space will not now permit a reference to them. I know nothing of Mr. Bessemer except his name, his centrifugal pump, and now this gigantic cupel, but I am always eager to express my sense of great merit. Besides the enormous capacity of his process for the manufacture of iron and steel, he has realised a method for effecting a working temperature, infinitely exceeding what has ever yet been attained in the arts, except by intense electro-chemical currents; and it is impossible to foresee what may be the range of ultimate and general consequences from this invention.—August 18. DAVID MUSSET.

[ADVERTISEMENT.]

ON THE MANUFACTURE OF IRON AND STEEL.

TO THE EDITOR OF THE MINING JOURNAL.

Sir.—In your Journal of the 16th is reported a paper, read before the British Association at Cheltenham by Mr. Bessemer, on the "Manufacture of Iron and Steel." In calling attention to the subject, I have no desire to question the value of the invention, which is almost illimitable, but as, in reading your report, the public will seize the false impression that Mr. Bessemer is the original patentee of the application of the principles involved in the process he describes for treating crude iron, I think it only just to those interested in the manufacture of iron, to Mr. Bessemer himself, and, above all, to my client, to remark that a patent which I obtained in the *Mining Journal* a few months ago, for "Improvements in the Manufacture of Iron and Steel," will prevent the use of Mr. Bessemer's patent, unless license be obtained from Mr. Martieu, for whom I claim the honour of first inventor and patentee of the process of treating crude iron—the subjecting it to the direct agency of, and disseminating through and amongst it, atmospheric air under pressure, as it flows from, or after it has flowed from, a blast furnace, and prior to congealing, as described by Mr. Bessemer.

I trust you will see the justice of giving this claim all the publicity possible, in order to correct the false and prejudicial impression which will otherwise exist on this important subject. JOHN AVERY, Patent Agent, 32, Essex-street, Strand.

Aug. 19.

P.S. It may be well to mention that Mr. Martieu has publicly proved his invention in Britain, prior to the date of Mr. Bessemer's patent.—J. A.

[ADVERTISEMENT.]

USING SALT IN COKING COAL.

TO THE EDITOR OF THE MINING JOURNAL.

Sir.—Our attention having just been called to a letter under the above title, which appeared in your Journal of the 16th inst., signed "J. H. Williamson, Staffordshire," we wish to inform that gentleman, who Calvert's Patent Purified Coke and Iron Company are quite prepared to test the value of his assertions, and that legal proceedings will be commenced at once against him or any other person using either of their patent processes for the purification of coke and iron, unless licensed.

WORRINGTON AND EARLE, Solicitors to the Patentees.

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ON THE EXTERNAL TEMPERATURE OF THE EARTH AND OTHER PLANETS.

Sir.—You are hardly fair in your remarks on this subject, in accusing Mr. Wm. Hopkins of borrowing from Mr. Evan Hopkins without acknowledgment, inasmuch as the idea that the temperature of the planets may depend upon atmospheric and other causes, as well as distance from the sun, was not a new idea in 1843, the date you give for Mr. E. Hopkins's work.

In the *Treatise on Astronomy* by Sir J. Herschell, in the *Cabinet Cyclopaedia* (a new edition, 1841), p. 279, I find the following passage:—

"The most natural conclusion from the very rare appearance and want of permanence in the spots is, that we do not see, as in the moon, the real surface of these planets [speaking of Mars and Mercury], but only their atmospheres, much loaded with clouds, and which may serve to mitigate the otherwise intense heat of their sun-shine."—*Launceston*, Aug. 17.

A. H. PATTERSON, C.E.

GEOLoGICAL FORMATIONS.

Sir.—The excellent observations of your correspondent, "Nature's Student," remind me of some remarks brought before the notice of the Literary and Philosophical Society of Birmingham, some 12 or 15 years ago, when it was endeavoured to be shown that the green rock which overlies the Blue Flate limestone in the coal field of this district could not have had an igneous origin, but must have been deposited in its present position by electrical agency, as (with respect to mineral veins) previously suggested by Mr. Evan Hopkins, and that, if so, even the basaltic range of the Rowley Hills might also have been produced under the same influences. Now, the phenomena your correspondent has observed in Scandinavia, &c., originate from a similar great cause; such apparently, however, are well seen in the older rocks of this country—for instance, in North Wales, where a reconstruction and crystallisation of

the strata must have been going on during countless ages; even the intrusion of the numerous and irregular quartz veins (the materials for which having been abstracted from other portions of the rocks) would alone be sufficient to produce a considerable dislocation of the strata, but the porphyritic masses in that region show that this operation has not been confined to mere veins; and if we take, as well, into account the enormous effects of denudation, we shall be enabled to explain the present condition of these older rocks, without having recourse to the absurdity of a central fire.

Birmingham, Aug. 20.

smelting and amalgamation), is in actual and profitable operation? Whilst preferring these, and the remarks in my former letters on the solution process, I should observe that no one can be more anxious that it should be successful, and that I believe it will ultimately supersede some of the others, aided by galvanism or electricity, but its day has not yet come.—*Bread-street*, Aug. 19.

WILLIAM REAT, jun.

THE MATHEMATICIANS.

Sir.—Thanks to the perseverance of Mr. Jellinger Symons, we have at length a palpable instance, prominently brought forward to every sound capacity, of the ill effects wrought on the understanding by a too exclusive study of the sophistries of the calculus. It is now two centuries since this form of mathematics substituted in our universities the logic of Aristotle. It assumed a similar position as an exercise for the juvenile faculties, to prepare them for the business of life, and had it rested there it would have been well; but, precisely like its prototype, it has been pursued further, and its professors have fallen into the very same error that Bacon exposed, and given a false resting-place to their minds, in the vain belief that any set of phrases or symbols wielded, *selon les règles*, in the seclusion of four walls, could open the secrets of Nature, and supply the place of reasoning, built upon the firm basis of physical facts, which can be obtained only by patient experimental toil, and by years—nay, *centuries*—of jealous observation and interrogation—not of fictions, but of realities. Nothing is more to be regretted than when powerful and acute minds, which under proper direction might do science service, are seen to be emasculated under the frivolities of a poor system. That the calculus has led to a neglect of geometry is an old complaint; yet few persons could have been prepared for the utter deficiency of correct geometrical conception exhibited in the authoritative denunciations by the *Times* correspondent and others of Mr. Symons's heresy. The simplest attention to the elementary definitions of points and lines would have prevented all this exposure. An act of rotation necessitates the consideration of only one mathematical point—the centre of the rotating system; an act of revolution necessitates the consideration of a second mathematical point, at an appreciable distance from the first, so that between the two points a line may be drawn. The second or revolving point may be a second centre of rotation, as in the case of the earth, or it may not, as in the case of the moon: the first involving two motions, requiring two separate forces; the second one motion, caused by one force. The whole controversy is as simple as the dispute whether there be any difference between the arithmetical numbers one and two. How, then, is it that intellects of the first order can have been led into the attempt to confound and identify such elementary differences as negative and positive, one and two, and make themselves appear, as Dr. Lardner has it, "ridiculously wrong?" Merely by the prejudice of system—an inmemorable instance that the wise are not always certainly wise. The simple mechanical facts, as they are, cannot be suffered to stand alone; they must be reconciled with "astronomy," as a certain collegiate theory is termed, which exists by and for the calculus. It having been assumed, about two centuries since, that the heavenly bodies, which by their distance, sublimity, and the magnitude of space, compared to our own littleness, stimulate the marvellous and the mysterious, and attract a peculiar attention, continue to move by an impulse, "impressed" on them at some unknown period of time, it becomes necessary for the philosophers of this school to endeavour to subject all their movements, as well as they can, to the known conditions of projected bodies. It is this attempt which has induced that class who call themselves "professed astronomers" to strain themselves to the conclusion that the path of the earth in its orbit with a *double motion* is not essentially different to the path of the moon in her orbit with a *single motion*. Both bodies *must* be furnished with the orthodox projectile twirl. Mr. Jellinger Symons has at length got in the thin end of the wedge before the face of a scientific association, and long before the end of this century we shall see that gigantic delusion, the theory of the perpetual motion of the planets, under the influence of a forceless force, attached to pieces, and swept away into the well-stored limbs of past philosophical errors, though perhaps distinguished above them all by the magnitude of its absurdity of physical fact.

We have no right, under any sound philosophy, to attribute to the great and distant bodies of the universe, merely because they are great and distant, qualities or properties quite at variance with our own physical experience. It more resembles politics than science, to speculate at large upon remote grandeur, which we cannot approach. After wasting their intellects in framing these loose systems, and affecting to comprehend them, their authors turn round to the unenlightened and heretical people of common sense, and superciliously exclaim, You are not initiated, you cannot understand the unknown tongue. What answer should be made to a gardener, who told us that the poke he gave to a bean in planting it made the roots grow downwards, and that the cutting of his planting stick made the stalks follow upwards? All these things are the secrets of trade. Why should not the gardener, as well as the mathematician, have his profitable mystery?

The latest controversy has supplied striking instances of those "vermicular" questions, which Lord Bacon warns us are so apt to be engendered in minds addicted to the stagnation of leisurely abstractions. Our opponents seem to attach the greatest importance to their capacity for realising the conception of an abstract axis, or axis passing through any or every part of a revolving body, through the Peak of Teneriffe, through St. Paul's, through the orbit of the planet, or through the moon. From the habitual conviction that all their ideas are great, they think this a great idea, and deplore the doomed inability of the *more practical man* to comprehend such sublimity. Were they to ascend from thin bathe of the trivial, and study the most commonplace of mechanical facts, the daily conversion of circular to reciprocating motion, they might amuse themselves not only with abstract axis, but with concrete axes stuck into any revolving body, as thick as "quills upon the fretful porcupine;" we might have less of such very vain and pretentious theories, and they themselves might have a better appreciation of the solemnities they put forth with the assertion, that "only astronomers and mathematicians can comprehend them." They are mere pedantic plumb-lines, magnified by their ignorance of what is truly important into a "vast profusion," which they believe none but themselves can fathom. It is time that a science so valuable as mathematics, when properly pursued, should be confined to its due limits, and the small professors of it set at their right level. DAVID MUSSET.

Aug. 16.

REDUCTION OF ORES BY THE SOLUTION PROCESS.

Sir.—In connexion with the letters under this title, will you kindly allow me to add a few remarks in explanation of some misunderstanding of my last letter. Your correspondent, Mr. Clement, observes, that the expression "barrel system of amalgamation" is incorrect, or rather, incomprehensible, and that he would substitute the term electro-chemical reduction. I beg to suggest, with due deference, that I conceive the expression to be perfectly appropriate and definite, the word amalgamation implying the employment of mercury for the separation of the metal, and barrel the manner of employing it, in distinction to the running, "tina," and "pato" systems of amalgamation; and I am of opinion that the expression which Mr. Clement considers the most comprehensible is a vague term, of which he is incapable of giving a correct definition or explanation. It has been fashionable of late to apply the term electricity or magnetism to anything which is not understood—e.g., to meassurism and table turning; and, I presume, it is on this principle the term electro-chemical reduction has been chosen. If it can be applied to amalgamation (as Mr. Clement does in reference to Mr. Hopkins's letter), it evidently must also apply to smelting, and we have thus only gained a long and indefinite name in place of two which are perfectly distinctive; if it is at all necessary to have a new name, let it be chemical reduction, in opposition to mechanical reduction, as chemistry is of itself sufficient to furnish a good explanation to the intelligent metallurgist of the various phenomena observed in smelting and amalgamation; and the term electro-chemical reduction should alone be used when any description of electric or galvanic battery is employed in connexion with chemical solvents.

I beg to correct Mr. Clement in respect to the remarks he makes on my attempts to dissolve the gold from its ores by means of chlorine; I thought I had expressed myself quite plainly in saying that I had not been successful in dissolving the gold, because it was probably protected by the coating of chloride of silver, and am rather surprised at his misunderstanding me to the extent he does in stating that I professed myself unable to precipitate the gold, as the paragraph previous expressly stated that I considered that part of the process comparatively easy; how silver can be dissolved in chlorine water I must say passes my knowledge of chemistry.

Mr. Clement's explanation of the "pato" or electro-chemical process is curious. He states that prepared copper ore is used to expel the chlorine from common salts, that the sulphurates are decomposed simultaneously, and that oxide of silver is liberated, which previously existed in that state in the sulphurates—that the silver then becomes deoxidised (of itself!), and converted into atoms, when it is dissolved by the quicksilver. These and the other remarks as to the solution of iron, gold, and silver, in the nitro-chloride (the precise composition of which reagent I do not know), as well as the addition of nitrogen to chlorine to enable it to dissolve gold, I leave to the consideration of chemists and mineralogists. I feel convinced that observations on the cost of employing chloride of lime and nitric acid for dissolving gold from its ores are needless, nor does it require argument to show why it should fall economically on the large scale.—"Ne subto ultra crepidam."

In explanation of what I stated with regard to the loss of gold in the amalgamation process as employed at Morro Velho, I may say that the principal loss of gold is that which is mechanically enclosed in the matrix, even after very fine pulverisation. Part is also lost through being in such a very minute state of division, that it will hardly settle in the running water employed for the concentration of the ore. Only about 1/50th of the total bulk of the ore is amalgamated, and I, therefore, stated explicitly that the loss was 2 per cent. of the gold contained in the sand amalgamated.

The results of the process at Morro Velho may be expressed in round numbers as follows:—Gold extracted, 4-8 lbs.; loss mechanically contained in sand from concentration and amalgamation, ½ lbs.; fine gold lost in concentration, ½ lb.—1 oz.

The components of the auriferous matrix which was submitted to amalgamation were—arsenical pyrites ($Fe_2S_3As_2$), magnetic iron pyrites ($Fe_2S_3 + Fe_2O_3$), and ordinary sulphur pyrites (Fe_2S_3), with a little quartz, carbonate of lime, dolomite, and brown spar. Of course, the metallic sulphides formed by far the greater part of the concentrated ore, and as some of them contain 54, and others over 40, per cent. of sulphur, I took 20 per cent. of sulphur as their very minimum contents. The quantity of free gold lost I have ascertained by repeated experiments; it is so extremely fine in this state, that it almost seems to have lost its colour, and is scarcely visible to the naked eye, even when collected together by most careful washing, appearing more like a black slime than gold, and can only be estimated by amalgamation.

When metal shall have been discovered to pulverise gold ores to a state of division as fine as the finest wheat-flour (sand which will pass through a sieve of 10,000 holes per sq. in. not being nearly fine enough), and subsequently to concentrate it without loss to 1/20th of its bulk, economically, then 90 per cent. of the gold may be profitably extracted from poor ores, containing from 1 to 1½ oz. of gold per ton, in the very fine state of division in which it usually exists in pyritous ores of that ley. I may further state my conviction, that in ores not finely ground the quartz will protect the gold from the action of acid solvents, as well as from that of mercury; and will add that it is well known to metallurgists that the loss bears a relation more to the bulk than to the richness of the ores; and, in the case of gold ores, that it depends much upon the size of the particles of that metal.

The mere process of barrel amalgamation may be carried out with moderate economy in South America for about 1s. per ton, and the whole cost of the operation in Morro Velho, including mining, reduction, management, &c., is under 22s. per ton, the reduction cost only amounting to 3s. 2½d. per ton, including wear and tear, but exclusive of interest expended in machinery and water-power. These few remarks tend to support Mr. Evan Hopkins's views of the extravagant ideas of the Chancellorsville Mining Company directors, in wishing to bring home their ores from America, to reduce them in England. It may be that the English process of reduction is much superior to that employed in South America, but it will require all to regain the difference between 4s. and 20s. per ton in the reduction alone, without including cost of carriage from the mines to England, which I have no doubt will exceed 30s. per ton, with commission, &c., thus disposing of the value of 1½ oz. of the gold at once, besides that which is not mentioned as loss in the process which Mr. Harris employs, for I suppose he does not pretend to extract the whole of the gold.

I still remark with regret that none of your correspondents have some forward to state where the solution process, as applied to copper and gold ores (in opposition to smelting and amalgamation), is in actual and profitable operation? Whilst preferring these, and the remarks in my former letters on the solution process, I should observe that no one can be more anxious that it should be successful, and that I believe it will ultimately supersede some of the others, aided by galvanism or electricity, but its day has not yet come.—*Bread-street*, Aug. 19.

ON QUARTZ CRUSHING, AND GOLD EXTRACTION.

Sir.—Perhaps the enquiry of Mr. C. J. Devey, in your last Journal, may prove opportune, by eliciting a rational discussion upon this all-absorbing and important subject; and in order that such reasonable procedure may be observed therein, I will, with your permission, hand in, for previous publication in your Journal, a summary of facts, collated from every source with great labour, to guide us in this discussion, to the number and variety of which some of your intelligent correspondents will doubtless contribute, as well as correct, if thought or found inaccurate.

To estimate the relative values of different methods of extracting gold from rocks, minerals, and alluviums, it is necessary to establish a standard of perfect procedure, to which all processes being referred and compared, their relative and absolute values will become apparent, without cavil or doubt.

CANON OF CRITICISM.

1. Gold exists in a free state in quartz and other matrices, to extract which it is only necessary to comminute the matrix, and present some agent that will absorb and agglomerate its particles.

2. When the particles of gold are microscopic, and enclosed in impalpable particles of matrix, the latter must be reduced by suitable grinding apparatus to a state of division somewhat finer than that of the auriferous particles.

3. It is an essential condition to chemical action that one of two reactive substances should be aqueous or igneous fluid, and the other in a state of fine division; and hence, for the first canon to be realised, with the perfect action of the second, the agent of absorption should also be in a state of fine division, or otherwise exalted in its reactive power.

4. Mercury cannot be brought to a state of fine division by friction or trituration, in contact with air, without a great degree of oxidation, and consequent waste of time, labour, and material.

5. The presence of water, by tarnishing the particles of gold, prevents the mutual contact of these with the particles of gold, and frustrates the intention of the process.

6. Trituration of mercury with any indifferent body in a *wet state*, at any temperature, and in contact with air, rapidly oxidises the particles of mercury, and frustrates its reaction on the gold.

7. Mercury in a state of fine division may be triturated with any indifferent body without the slightest oxidation, provided a temperature of 500° F. be maintained during the process.

8. The power of mercury to absorb gold, and vice versa, is proportionately exalted by heat.

9. Heat alone (i.e., without any other de-oxidising agent) reduces the oxide of mercury to the metallic state.

10. All grinding machines will be defective that do not possess the faculty of self-adaptation and rectification of their grinding surfaces.

11. The plain surfaces of cylindric and conical rollers, and varieties thereof, working in the same juxtaposition, become fluted and defective by grinding hard substances, and thus lose their accuracy of effect.

12. It is essential to economy of time, labour, and material, that grinding machines self-act, and that they shall communicate every part of their charges *certainly and equally*, and *without repetition of process*.

13. No single machine can be competent to grind and pulverise with the same economy and certainty of effect as two or more machines constituted to the express purpose of each department or step of the requirement.

14. The processes of grinding and pulverisation of bodies containing fine gold should be performed without water.

15. Repetitions of processes and parts of processes, and modes of treatment adding complexity

Ventures or speculations, some perhaps offering better prospects from locality than others; still, as a rule, it is quite enough to risk one's money in working and presenting a mine, not to pay enormous premiums for shares, in many instances ten times greater than the best dividend mines can be purchased at.—*Aug. 13.* Q. S.

[Our correspondents often suggest to us the course we should pursue as journalists and, although we are willing to receive reasonable hints, we are not inclined to submit to dictation. We suppose that we have acquired some experience, and our object has been always to advance the interests of the mining community; both British and foreign mining enterprises have been encouraged by us as far as laid in our power. We do not presume to be infallible, but, at the same time, we do repudiate the idea that an anonymous writer should presume to prescribe the manner in which we should act. If sincere in his views, why not throw off the mask, and at once acknowledge his name. Common sense must have told him that concealment is of no utility, and statements made under a mask, however specious and clever they may be, are but little regarded. The public, as well as we, no doubt, are able to discern whether it is worth while embarking in a mine at a premium or not; but we must protest against the fact of "Q. S." being the self-elected dictator of all matters concerning mining, the *curule chair* of which he has so modestly assumed.]

LIMITED LIABILITY APPLIED TO MINES IN WALES.

Sir.—As a shareholder in a great number of mines, I was especially gratified to notice, in your last Journal, that the executors of the Bronfloyd Mine have taken the initiative in placing its affairs under the provisions of that most excellent measure—the Joint-Stock Companies Act, 1856. Doubtless the shareholders of the Bronfloyd Mine are indebted to the activity of their most excellent secretary, who, it is admitted on all sides, has, during his connection with this company, immediately availed himself of any circumstances calculated to promote the welfare of the adventure, and I think he is especially entitled to thanks for the energy and application he has shown in this last measure. I hope that the way thus pioneered will be followed by all other mines; for experience has taught me that the principal objection to speculative mines by large capitalists is their liability to be sued after having paid up their proportion of calls, and ceased to become shareholders; whereas, by the new Act of Limited Liability, the registered public servant can alone be sued, whilst he in return falls back on the general body of shareholders for contributions.

J. W. OLIVER.
73, Old Broad-street, Aug. 21.

GREAT POLGOOTH.

Sir.—I see, by last week's Journal, that this old and celebrated mine is to be shut up. I must now most respectfully call the attention of the lords, or their stewards, to one fact connected with this act—that the first, second, and third workers found that the great main shoot of the first found very near the surface continued down to the present working, varying in its richness and purity as the capriciousness of a great and general elvan course twisted or turned in its descent. Now, let me remark that this elvan course was found at the very surface, with the over and under it. Its dip east and north is about one in six, thus you find that in about 100 fms. perpendicular the dip has been 600 fms.; the present works are from 600 to 700 fms. north-east of the principal engine-shaft. It could be now worked as a separate mine (this north-eastern part). I think there can be but little doubt of its proving a desirable property. With this view of the present position of the ground, I beg to call on the lords, or their stewards, to have a faithful and true plan, with drawings, of the works working as left, if suspended, in order that this ground may again be worked below, and to the north and east of the present workings. This to form a new undertaking to the east, adding the lands of the Earl of Mount Edgcumbe and Major Carlyon to the east; the latter piece of land has been worked under the name of East Polgooth, but on a lode much to the north of the Great Polgooth lode. To work this new mine, an engine-shaft should be sunk from the surface, considerably to the east of the old workings, and always avoiding any proximate approach towards the old workings of the Great Polgooth. By this method a new mine can be opened to follow down the great shoot of tinny ground, and at the same time shoot off a great deal, if not all, the water which is now pumped out of this mine from levels many miles in length. Mr. Editor, if you think these remarks worthy a place in your valuable Journal, the lords and the mining public may at a future day be in some measure benefited.

S. Austell, Aug. 19.

AN OLD AND EXPERIENCED MINER.

HUCKWORTHY BRIDGE COPPER MINE.

Sir.—Seeing a report in your Journal of the 9th inst., written by Captain Grey, of Calstock, to the effect that this mining sett is not an extensive one, and that statement being incorrect, I beg to give the following information, for the guidance of distant shareholders and the public generally. The new piece of ground added to the Old Huckwirthy Bridge Copper Mine is very extensive, reaching from the Old Huckwirthy Bridge Mine, and extending to the east to the Forest of Dartmoor, which I should think is 1½ miles in length on the course of the lodes, and the stratification of the country very congenial for copper ore; and having taking the bearing of the Old Huckwirthy Bridge lodes with those of Sortridge Consols and North Wheal Robert, which must make into the eastern ground of the Huckwirthy Bridge Copper Mine, and seeing it is near the granite range, with the Wheal Friendship cross-course passing through it, there is every probability of its becoming one of the richest mines in the district. I think it nothing but fair to the mining world that every one who sends a report to the Journal should give a proper name, or at least his place of residence. I have made every enquiry in the parish of Calstock to find such a man as Capt. John Grey, but no such one is to be found. I did see one James Grey, who is a bootmaker, and from the conversation I had with him, I think he knows too much of geology to send such a report as that by the so-called Captain Grey. I shall be most happy to answer any questions relative to Huckwirthy Bridge Copper Mine. W. JEFFREY.

THE SILVER BROOK AND IVYBRIDGE DISTRICT.

Sir.—By the sanction of many resident shareholders in Silver Brook, I have made application to the finance committee to call a meeting on the mine, which no doubt would be well attended: the gentlemen lending their names promising to attend are Messrs. Vicary, Pinaent, Mitchell, Cull, and many others. It is very true the mine is not so rich for lead as it has been, but the lodes are large, well defined, and rich for superior blende, zinc, intermixed with lead, mundic, and silver, and in the most beautiful channel of ground, showing that it may be fairly expected that large deposits of lead will be discovered. Whether the finance committee will comply with the application or not, I would recommend them to create another 5250 shares, to be distributed among the present shareholders as new shares, only to be sold as new shares, liable to pay up to 1/4, the old shares to be sold as free until the 3250, be fully paid up; this would cause holders of stock to adventure in purchasing some of the old shares, as it may happen the next 1000, so called up might be all required. There also happens to be many shareholders as well as myself who are interested in the Ivybridge, and as that company intends to place the mine under the Limited Liability Act of 1856, I say by all means place Silver Brook or any other mine under that Act, for the benefit of all concerned.

I trust your valuable Journal may be the cause of inducing the Silver Brook committee to call a meeting on the mine, with one or two of the finance committee in charge of the cost-book, so that all attending might see the liabilities, if any, and defrauds, if any; as there has been a jarring in the division of shareholders, the London say the country do not pay their calls, while the country say the London do not pay their calls.

We have one great advantage in Mr. A. Murray, F.G.S., being a staunch supporter of the expected riches of the locality in which Silver Brook is situated, especially as Wheal Adams and Wheal Exmouth have sold such quantities of lead, and now Frank Mills making returns below in depth to Silver Brook. Those who do not know the locality, and many feel interested at a distance, by referring to an Ordnance Map, will find Wheal Exmouth and Frank Mills at Christow, Silver Brook at Illogan, two parishes between Hennoch and Bovey.

I would also recommend the mine to be inspected by an unbiassed person, accustomed to work on lead, such as Capt. Hampton, or Captains Paul, Nicholls, and James, or Mr. Ennor. Capt. Rickard is going to inspect for me, as I have held shares from the commencement of the mine, and, of course, wish for success.

Ashburton, Aug. 20.

SCOTTISH AUSTRALIAN INVESTMENT COMPANY.

Sir.—The directors desire me to state, that they regret to observe in the *Mining Journal* of Aug. 16, a somewhat inaccurate report of the proceedings at the special general meeting of the Scottish Australian Investment Company of the previous day. The notice mentions, that "the principal alterations to be effected by the resolutions are, the capital of the company will be increased to 300,000," and "greater powers than heretofore will be placed in the hands of the directors."

I beg to inform you that the paid-up capital is already 200,000, and, therefore, it could not have been proposed by the resolutions to increase it to that amount; and, secondly, that the resolutions did not propose or contemplate any increase of power to the directors, but, on the contrary, they will have the effect of lessening their powers.

The notice further mentions, "that great dissatisfaction was expressed that so much power should be given to the directors; and also that, although at the last meeting a committee of investigation was appointed, that committee had not done once."

The fact is, no committee of investigation was ever appointed, or even contemplated; and there was but one shareholder who expressed at the meeting any dissatisfaction whatever with the powers of the directors.

The committee, erroneously referred to in your paper as a committee of investigation, was a committee of three shareholders appointed to confer with the directors on making some proposed alterations in the deed of co-partnership of the company, and although two of the gentlemen comprising it (one from Illinois, and the other from absence) had been unable to attend the meetings which were held upon the subject, the other member from time to time duly attended, and had much personal communication with the board, and is quite satisfied—as he stated at the meeting on Friday last, that, as respects the alterations upon the deed which have been prepared, the wishes of the shareholders have been fully and carefully provided.

34, Gresham-street, Aug. 22.

C. GRANGER, Sec.

IRON LIGHTHOUSE FOR THE BAHAMAS.—During the present week we have seen the lighthouse constructed by Messrs. Grissel and Co., of Eagle Wharf, City-road, which is intended to be placed upon the Great Isaac's Rock, in the Gulf of Florida. Experience has shown that iron lighthouses can be constructed at a much lower rate than those of stone, and are equally as durable and safe. The tower is in height 134 feet from the base to the gallery, and from thence to the apex it is 20 feet, making a total of 144 feet; the diameter at the base is 24 feet, and at the top 14 feet. The castings were made and polished by Messrs. Grissel, and reflect great credit on those employed in the several departments. The manner of joining the plates in this lighthouses is somewhat different to that generally followed in structures of a similar nature. In these the plates are generally joined in a series of rings, but in this what are called "break joints" are used, thereby giving a greater strength to the whole of the fabric. The building consists of six floors, the first being the general room; this is succeeded by the daily living room, bed room, night watching room, cleaning room, present use storeroom, and lantern. The machinery for lighting has been constructed by Mr. Wilkins, of Long-cross, and contains 21 burners, with carbazole reflectors; the machinery for the lighting apparatus is elaborately finished. The whole of the interior is lined with corrugated iron, and well ventilated; the sashes are so formed that no danger can occur. The cost of the lighthouse is about 7000*t.*, the weight 300 tons. It is now finished, and merely waiting the orders of the Admiralty to be transmitted to its destination. The contractors have offered to erect it there at a fair remunerative price.

Mr. Lancelot Iredale, many years connected with Messrs. Abbot and Co.'s Gateshead Ironworks, with Mrs. Iredale and family, embarked on board the *Light of the Age*, for Sydney, New South Wales, to take part in the management of the iron-works carried on by members of his family in that capital.—*Gateshead Observer*.

Meetings of Public Companies.

WHEAL LANGFORD MINING COMPANY.

The quarterly meeting of adventurers was held at the offices of Mr. King, Austin-friars, on Tuesday, Mr. Broad in the chair.

Mr. King (the secretary) read the notice convening the meeting, and the minutes of the last, which were confirmed. The following report was then read:

Wheal Langford, August 16.—We beg leave to inform you the north lode, at the bottom of the engine-shaft, is 3 ft. wide, and spotted with yellow copper ore throughout, of a very promising character. The south lode is low in the south side of the shaft, with an underlie a little north, and it now appears very probable that both the lodes are together below this point. It would give the lode a more satisfactory trial by sinking the shaft 10 or 12 feet deeper before driving on, than to do so at the present point of junction. We found it very difficult to sink the shaft, in consequence of the pressure of water from the old mine, and were obliged to suspend the sinking until the communication shall be made with the old mine in the 35 fm. level. We had no means of knowing how far they had extended the 35 west in the old mine, but now we find that it has not been driven beyond the winze, as the end east is now within 4 ft. of it, and we expect to hole it in a day or two. The lode in the 35 is from 3 to 4 ft. wide, containing good stones of copper ore, and tribute gravel. The stopes east of Malachy's shaft is yielding about 1½ ton of copper and 2 cwt. of lead ore per fathom. There are about 25 tons of copper and 9 tons of lead ore on the mine, which will be got ready for sampling in a fortnight from this time. To let down and drain the water from the old mine, and sink the engine-shaft 2 fms. deeper, will require six weeks from this time.—J. NANCE; W. KNOWT.

The abridged statement of accounts, from April 1 to June 30, was submitted:

Balance last audit	£ 60	5 11
Calls received	496	13 6
Copper ore sold	58	12 7
Lead ore sold	237	3 4 = £832 14 4
Mine cost	£423	2 9
Merchants' bills	254	5 10
Rent, dues, &c.	37	10 3
Law expenses	90	0 0
Sundries	34	12 9 = £830 11 7

Leaving balance in favour of adventurers £ 13 2 9

Mr. King explained the present state of the workings; and, by a plan, pointed out the junction of the two lodes, which they expected to reach in about six weeks, and in the event of it not proving rich, he believed the committee, who were very large shareholders, would not be inclined to go on.

The report and accounts were then unanimously adopted.

A PROPRIETOR wished to know whether the present report might not be considered satisfactory?—The CHAIRMAN replied that it was most encouraging, yet the committee were of the opinion expressed by Mr. King. A resolution was then unanimously passed that the purser be instructed to take proceedings against all defaulting shareholders.—Mr. King, in answer to a question, said, that in the event of mine stopping, the machinery and materials would fetch about 2000*t.*

Mr. HALLETT observed that the committee had such a large interest in the adventure that they would not go on if there was not a fair prospect of success. The shareholders might rest satisfied, that if by the next meeting they did not get something worth following up, they would then propose to abandon the mine.

A call of 3s. per share was carried unanimously, and the committee of management re-elected. A vote of thanks to the Chairman terminated the proceedings.

[Mr. King received a report on Wednesday, stating that they had communicated with the old mine the preceding night, without accident to men or machinery.]

CLARENDON CONSOLIDATED COPPER MINING COMPANY OF JAMAICA.

The third half-yearly meeting of proprietors was held on Tuesday, at the London Tavern, Bishopsgate, Mr. J. W. Carter in the chair.

The CHAIRMAN said they had met for the laying before the half-yearly meeting the report, and he had little to say in addition. He would call upon the secretary to read the notice convening the meeting, and the report of the directors, and would afterwards make a few observations upon their present position.

Mr. LOHNE (the secretary) read the notice convening the meeting, and the following report of the directors:

In convening the ordinary half-yearly meeting required by the Deed of Settlement, your directors have the pleasure to lay before the proprietors the bi-monthly reports received from Jamaica since the last meeting, and they feel assured these documents will be considered satisfactory, as showing a steady and progressive improvement in the development of the Stamford Hill Mine. The sample of ore referred to by Capt. Harper, in his report of July 9, has been assayed in London, and the produce for copper is 21 per cent. From 10 to 15 tons of this ore are now in course of shipment. Your directors have availed themselves of an opportunity to secure a suitable iron water-wheel in the island, on very moderate terms, which will be shortly erected. In carrying on the necessary work, and in the general administration of the affairs of the company, your directors continue to exercise the strictest economy. The cash remaining in hand, inclusive of Government securities, amounts to 10,833*t.* 11s. 3d. In conclusion, your directors assure the shareholders that everything connected with the interest and progress of the undertaking continues to receive their unremitting attention.

The CHAIRMAN, in rising to propose the adoption of the reports, said he had only two or three remarks to make. Although the report of the directors was short, the bi-monthly reports were full that it really left little for them to say. The progress was not only continuous, but very satisfactory; and it would be seen by the report received by the last mail that it was not only of the same character, but somewhat more encouraging.

As they proceeded in depth the improvements, both in quantity and quality, which was most gratifying, it proved that the directors led them to believe might be the case, had been fully realized. The proprietors would observe by the report that they had only taken out a small quantity of ore; but he need not say that the first object of a mining captain was ventilation, before they could work to any extent in the bowels of the earth, or properly stop the lodes. They were down to the 35 fm. level, and were now busily engaged getting the ore out. He could not say what the 10 or 15 tons would yield upon arrival, but it was satisfactory to the board to find that the quality of the ore was all they could expect, and, he might say, desire. If they got 25 per cent. of copper, and should be fortunate enough to have quantity for mining in any case must be uncertain—he could only say it was most encouraging.

Mr. Thompson was largely interested in the mine, but he was slow in giving an opinion, a course in which he (the Chairman) heartily concurred, as in all mining operations he considered they ought to proceed with caution, and not raise futile hopes. He had no further remarks to make, except that the accounts suggested by Mr. Hoyes at the last meeting had been prepared in the form he proposed, and the expenses for the half-year would be found in a separate column. In that account every single charge both in England and Jamaica was included, and paid. (Hear.) The slight delay in calling this meeting had enabled the directors to make them up to June 30, inclusive, and by which it would be seen amounted to 3031*t.* 13s. 4d. for six months, and in round numbers they had 11,500*t.* of available assets, but if they progressed in getting out the ore, which he believed they would, a large portion of the expenses would be materially reduced, by the produce becoming available from time to time. They expected to reach the 45 between now and October, and he (the Chairman) was of opinion they had got a mine, and a valuable one. (Cheers.)

Mr. LOHNE next read voluminous reports, from which the following are selected, the latest having arrived by the packet on Monday. Extracts from the former ones have already appeared in the *Mining Journal*.

Old Harbour, Jamaica, July 10.—Herewith you will receive Capt. Harper's report, with a statement of work done up to June 30, and as this will probably be the last communication you will receive before the meeting of the shareholders takes place in Aug. I deemed it my duty to visit the mine yesterday, and am happy to state that everything is going on satisfactorily at Stamford Hill. There is a pile of about 10 tons of dressed ore on the floors; a sample taken from the pile I am sending in a small box by the present steamer, and I intend to ship this ore, and as much more as can be dressed, in a few days on board the *Sheffield*, to sail from Old Harbour, perhaps the directors may think it desirable to have it shipped, that the shareholders may have the required information as to the quality of the ore now being extracted. Of course, the probability is that it will be richer in the 35 fm. level, fms. down. The ore sent out from the stopes is from the 35 and 22 fm. levels. The ore taken from the bottom of the shaft, about 41 fms. from surface, pretty clearly indicates what the lode will be at the junction with the cross-cut in the 46 fm. level. This I hope will take place about the middle of October, when we shall be in a position to extract ore from both levels; in the meantime, we shall continue to take out ore from the stopes we are now working in the 35 fm. level. It would be premature to say what the result may be, but if we are allowed to form an opinion as to the future from what has already taken place, there can be but little doubt of the 35 level proving most productive. The very part of the lode has improved in breadth, in length, and in richness regularly, as we have proceeded downwards with our operations, and I may fairly congratulate the company on our present position and future prospects. I am aware that any opinion I express must be received with due caution, but I am so confident of the correctness of my views, that I am not deterred by any responsibility I may assume from stating the conclusions I have arrived at, after investigating the subject with all the attention that continued personal application afforded me the opportunity of doing.—EDWARD THOMPSON.

Old Harbour, Jamaica, July 25.—Since I had the pleasure of last addressing you, I have received your favour of 1st inst. I have requested Capt. Harper to give every information in his power in the bi-monthly reports, and I always make a point of stating any circumstances of interest that come within my knowledge, but Capt. Harper is so very cautious, that he will never hazard an opinion unless he is morally certain of the result. I cannot blame him, neither do I like to press him for his opinion upon points that cannot be ascertained correctly during the progress of the work. Sometimes the stopes produce rich ore; at other times the copper is not so thickly disseminated through the lode, and this will continue to be the case till we do deeper. Every fathom we sink the ore becomes more concentrated, and during the last day or two we have extracted very rich ore from the stopes between the 22 and 35 fm. level, on the north-east end of the lode, which I believe scarcely requires any dressing in the preliminary stages. But little ore apparently is taken out; but the fact is, until the shafts and winzes are sunk sufficiently deep, and various adits driven, it is impossible to get out the ore from the various levels as they drive on the course of the lode, if there were thousands of tons of copper in the stopes. I must refer you to Mr. Child to make this more intelligible than I can. I am shipping the dressed ore on the *Sheffield*, but shall not be able to put any board after the 28th. I am so anxious to see the further development of the mine that I shall not leave Jamaica immediately, in case my absence may in any way retard operations; however, we are so far advanced, and there is such an evident improvement every week, that I do not know how soon I shall be able to leave, with full confidence in our success. We are continuing to take out ore from the north-east end of the lode in the 22 and 35 fm. levels, and I hope there will be no cessation in the extraction of ore from the present time. The men I am happy to say, are quite healthy, although the weather is excessively hot; 90° in the shade at Mamme Guile.—EDWARD THOMPSON.

Retreat, Jamaica, July 24.—Stamford Hill: Herewith I beg to hand you my report of our different operations in this mine since my last communication. In the 22 fm. level, north-east of shaft, the branch lode on which we have been driving is about 6 ft. wide, consisting of flockan, spar, and iron, with green and blue carbonates of copper. I have suspended operations here for the present, and removed the men back to stop the bottom of the level, where we have a very pretty branch of yellow copper ore going down, worth at present about ¼ ton per fm. In the 35 fm. level, south-west of shaft, the lode continues to present much the same appearance as when last re-

ported on, being about 7 ft. wide, composed chiefly of porphyry, with spar and iron, intermixed with spots of yellow copper ore. In the 35 fm. level, north-east of shaft we have, during the past few days, had a slight improvement in the appearance and character of the lode. I cannot inform you just now its correct breadth, as we are extending the level on the footwall side, which is very regular, composed of porphyry, flockan, spar, and mandic, with a quantity of green carbonates, and stones of yellow copper ore. In the stopes in the back of the 22, which is immediately over it; I therefore, think it likely it is one and the same. In the

Higgins is for the present the manager of the company's works at Northampton, and is so for some months. In regard to the last call made, the directors have the satisfaction to state that, with the exception of 281, 15s., it may be said to have been fully responded to. As to the general progress of the affairs of the company, the directors beg to state that they have always most anxious to progress, and they have reason to think that the shareholders will accord to them some little credit for their attempts to accomplish this. They have taken upon themselves the general management; and if they have not done so satisfactorily as many of the shareholders may have desired to have seen, they may not be unmindful of the general interest of the shareholders, the directors themselves holding a very large stake in the company, and they have had in the greatest necessity for caution, and the almost paramount one of keeping the company out of debt.

The directors will use every exertion to bring the company into a prosperous position, and the confidence the shareholders have reposed in them; but in all these they must rely upon the shareholders to render them assistance and co-operation which may be from time to time required, and by which the directors hope and believe their efforts will ultimately reap the advantages so much desired for the general body.

Mr. Francis enquired if there was only 281, 15s. due for call?—The CHAIRMAN said it was the total amount due.

He Francis wished to know why 37,671/- had been paid for truck hire, and from which managing director, who had hired the trucks from the Midland Wagon Company.

The CHAIRMAN replied, that unfortunately it was that very business of the trucks had crippled them so long. It was the result of a contract entered into by their managing director, who had hired the trucks from the Midland Wagon Company, at a heavy rental, with the option of buying them after two years.

There was a possibility of getting rid of the contract they would be delighted, but were bound down in such a manner that it was impossible at present to do so.

M. Francis enquired why certain notices of resolutions he intended to move were inserted in the circular convening the meeting?

The CHAIRMAN contended that the secretary was not bound to do it under the Deed of Settlement, but Mr. Pierce had his remedy by sending it to every shareholder himself and a copy of the list of shareholders could be obtained at the proper office.

A discussion ensued, which ended in a resolution being moved and seconded that the notices sent by Mr. Pierce be read. The motion was carried by a majority of one.

The SECRETARY said he had not got the notices.

The CHAIRMAN said, as they could not be legally entertained he would not allow them to read. If 12 or 20 shareholders thought proper to adopt such a course it would not be the greatest inconvenience, and put the company to considerable expense, and the Deed of Settlement provided that any shareholder could send such notice to himself.

Mr. Pierce was at liberty to read his own copy, if he thought proper to give up the time of the meeting by so doing. The subject was eventually withdrawn.

A PROVOSTOR thought that the shareholders ought to know more about the company. There seemed to be a dogged feeling on the part of the directors against proceeding.

Mr. MARTIN contended that they were going from bad to worse. If the debts had been paid off, it was done by means of calls. He thought they should either wind-up or make calls sufficient to enable them to go on satisfactorily.

The CHAIRMAN considered it would be madness to propose a hasty call. The course he was adopting was to avoid it. They were now engaged in contracting for the erection of smelting furnaces and machinery, the payment of which would be spread over a convenient period, so that the works would be in operation before they had actually paid the full amount.

A long discussion took place, during which the progress made in the contracts was admitted, but which would be injudicious to publish, and the statements as to future actions appeared to give great satisfaction. The report and accounts were then unanimously adopted. The Chairman and Mr. Baker were re-elected directors, and Edward Archbold auditor. The sum of 10s. 10s. was voted to the auditors for services. A vote of thanks to the Chairman terminated the proceedings.

WINDING-UP OF MINING AND JOINT-STOCK COMPANIES.

THE CWMDEYLE ROCK AND GREEN LAKE COPPER MINING COMPANY.—On Tuesday, Vice-Chancellor Kindersley (acting in this matter for Vice-Chancellor Wood) appointed Mr. Harding, of Lothbury, to be official manager to wind-up the affairs of this undertaking. The property is situated about 12 miles from Carnarvon, and forms part of the celebrated Snowdon. The liabilities, so far as they can be yet ascertained, are supposed to be about 7000/. There has been a disposition manifested on the part of certain parties to stay the order to wind-up, and meetings have been held upon the subject so recently as Thursday last, but the Court having been once set in motion, there is no alternative but to proceed.

KNOCKARELLANE COPPER MINE COMPANY.—A petition for the dissolution and winding-up of this undertaking has been presented to the Master of the Rolls, in Ireland, by Mr. T. Porter, of the Crescent, Longford, through his solicitor, Mr. M. Browne, of Dublin.

GREAT NORTH OF ENGLAND AND YORKSHIRE AND GLASGOW RAILWAY.—This was an abortive railway scheme, arising out of the memorable railway mania of 1847, and it was ordered by the Court of Chancery to be wound-up in 1850. It was referred, for this purpose, to the late Master in Chancery Blunt, and being prior to the decision in Upfill's case, very great litigation ensued in the matter, which delayed the winding-up of the company for some years. Calls to the extent of 200/- were made on each of the provisional committee, and these having been paid, the affairs of the company may be said to be settled. Steps for their final completion have been taken before Master in Chancery Tinney during the past week, and the recognizances of Mr. Harding, the official manager, have been vacated.

OKAY LIFE ASSURANCE AND LOAN COMPANY.—A rather heavy call has been made in this case by the Master in Chancery Sir George Rose, on the report of Mr. Quilter, the official manager, and Messrs. Pontifex and Moginie, his solicitors, who depose that 3/- per share will be required to defray the debts from all those shareholders whose names are settled on the list of contributors. The proceedings in winding-up the company are taken on the petition of Mr. H. Remington, of Holland-road, Brixton, who states that the company was started with a proposed capital of 50,000/., in 10,000 shares of 5/- each, and that he, the petitioner, took 300 shares. The head offices were in Moorgate-street, with branches at Birmingham, Manchester, and Newcastle. The Deed of Settlement was signed by 80 subscribers, 4733 shares were taken, and 6653/- paid. The outstanding debts due from the Oak amount to 45000/., over and above the amount agreed to be paid by the City of London and County Life and Fire Assurance Company, under an agreement for amalgamation and taking the business of the Oak, and nine actions had been brought against the directors of the Oak to recover outstanding liabilities.

ROYAL BANK OF AUSTRALIA.—Several meetings in the affairs of this bank were held in Master Richards's office prior to its closing for the vacation, attended by Mr. Wryghte, the official manager, and Mr. H. Harris, of Moorgate-street, his solicitor. They were chiefly for the consideration of creditors' claims, in respect of which compromises have been carried out, and large demands will be discharged. The case is an illustration of the useful powers conferred by the Winding-up Act on official managers and solicitors, for the rejection of inordinate, or merely colourable, claims.

The claims on the bank originally amounted to the enormous sum of 450,000/., having now been reduced to under 100,000/., which latter sum is expected to be provided for in the course of the present year.

TRING, READING, AND BASINGSTOKE RAILWAY.—It is not often that a dividend is declared under the estate of a company wound-up in Chancery, but this rather rare result has been effected in the case of this company, in the shape of a second and final dividend of 2s. 6d. per share, making, with a former dividend of 10s., a total of 12s. 6d. per share, under the official management of Mr. Wryghte, of Sambridge House, Basinghall-street.

✓ NEW MINING COMPANIES UNDER THE LIMITED LIABILITY ACT.

The following companies have been registered under the new Act:

THE COMPANY OF PROPRIETORS OF THE ROYAL CONSOLIDATED COPPER MINES OF SAN FERNANDO, CUBA.—For the purchasing and working of certain copper mines in the mining royalty of San Fernando, in the capitania of Manicaragua, and in the province of the Villa de Santa Clara, in the isle of Cuba. Proposed capital 400,000/., in 40,000 shares of 10/- each. Mr. Upton, solicitor, Austinfriars.

ESGAR LEE MINE COMPANY.—For working and mining ore and other minerals from the Esgar Lee Mine, in the county of Cardigan, in South Wales. Capital 10,240/., in 1020 shares of 10/- Offices, St. Stephen-street, Bristol.

THE LLWYNNALEES MINE COMPANY.—For working and mining ore and other minerals from the Llwynnales Mine, in Cardigan. Capital 12,800/., in 1280 shares of 10/- Offices, St. Stephen-street, Bristol.

✓ STANNARIES OF CORNWALL AND DEVON.

The quarterly sittings of the Vice-Warden's Court, for the Stannaries of Cornwall and Devon, commenced at Truro on the 9th inst., and concluded on the 18th. The following were amongst the cases at common law:

NOELL v. WYNNE.—Mr. Henry Noell, of Hayle, as purser of Gwallow Mine, in St. Hilary, had sued, on the equity side of the Court, Mr. Thomas Wynne, of Staffordshire, for recovery of 213/- 0s. 8d., costs on twenty-two 1024th shares in Gwallow Mine. The case was heard at the February sittings of the Court, when the Vice-Warden deferred judgment. He gave judgment in the following April for the plaintiff, but subject to leave to defendant, if he thought proper, to try an issue at common law, before a jury, on the point whether the defendant was a shareholder, and held 22 shares in Gwallow Mine, at certain times when calls were made—viz., in the months of April, September, and November, 1853, and in March, June, and July, 1854, or at any one of those periods. This issue at common law was now tried. It appeared from the evidence, that the mine was started in January, 1853, when the plaintiff, who was the promoter of the undertaking, sent a prospectus to different parts of the kingdom, with a report of Capt. J. Richards on the prospects of the adventure, accompanied by a blank form of application for shares, the blanks to be filled up by applicants. Defendant applied for 25 shares, but as 1148 shares were applied for, whereas the mine was divided into only 1024, the allotment to each applicant was ratably diminished, and, in consequence defendant was allotted only 22 instead of 25 shares. Notice of this allotment was sent to defendant by the purser, Mr. Noell, but he returned no answer. Notices of the mine meetings, and statements of accounts, and of calls made, were periodically sent to the defendant, but he took no notice of them, or ever wrote on the subject to the purser. Defendant said, in his evidence, that he applied for the shares through the instrumentality of Messrs. Anderson and Bettany, of Staffordshire, from whom he had received a prospectus; and he stated that when the notice of allotment was sent to him, he told Mr. Bettany that he should have nothing to do with the shares, because he was only allotted 22 instead of 25. He did not write to the purser on the subject, but every circular afterwards received about the mine meetings and accounts he either burnt or threw away. Another witness, Mr. Lear, of Longton, in Staffordshire, said that from six to twelve months after he saw defendant sign the application for shares, defendant told him he should have nothing to do with them, because he had not the number allotted which he applied for. Defendant, in his own evidence, said it was not four months after his application when he repudiated the allotment in the presence of Mr. Lear.—The Vice-Warden said the defendant was not at all bound to take an allotment of 22 shares, when he had applied for 25. But the question was whether his subsequent conduct, his silence on the receipt of so many letters, was not such as to reasonably induce the belief, on the part of the promoters of the adventure, that he had accepted the allotment, and become a shareholder; and that he might, if he chose, have demanded the shares. The jury found a verdict for the plaintiff, saying they considered the defendant was a shareholder from April, 1853, to December 29, 1854. Mr. Stokes and Mr. R. Davies for plaintiff; Mr. Roberts and Mr. Hockin for defendant. On Monday Mr. Roberts moved for a new trial, on the ground of misdirection, and that there was no case for the jury. The Vice-Warden took time to consider his decision.

PERMEWAN v. GREENWOOD.—This was an action to recover damages for an alleged breach of an agreement, the damages being laid at 100/- Plaintiff and defendant were both mine brokers, the former living in Penzance, the latter at Truro. The breach of the agreement was alleged to have taken place in respect of two East Wind Rose shares. Plaintiff, in December, sold the two shares in question to Mr. Joseph Dunstan, of Truro. Plaintiff had shares of his own, so he borrowed two from defendant, and the money paid by Dunstan for the shares, 100/-, was handed over to defendant. Plaintiff alleged that when defendant lent him the shares he told him that he was to keep them "as long as he liked." Defendant denied this, and asserted that the condition was, that plaintiff was to return them forthwith, or within a reasonable time. Plaintiff alleged that on July 12 he tendered defendant two shares, but that defendant would not accept them, and pay over to him the 100/- Defendant proved that at the time mentioned plaintiff had actually no shares in the mine, and he admitted that the arrangement plaintiff had made with another party to supply the shares was not sufficient, and did not constitute a legal tender; that, in fact, plaintiff, when he offered them, ought to have had the shares in his own name on the cost-book. The evidence in the case was very conflicting. The jury found, by their verdict, that a sufficient tender had been made; but they found, on the first issue, that the agreement had not been proved, which was a verdict for the defendant.—On Monday, Mr. Hockin moved for a new trial of this case, which the Court refused.

The following equity causes were connected with the Devon Stannaries:

DUNN v. JEFFORD.—The plaintiff was Capt. Thomas Dunn, formerly an agent of Bottishill Mine, in Plympton St. Mary, Devon, and sued Capt. Jefford, as the agent of the mine, and representing the adventurers. The plaintiff's claim was for 204, 10s. 3d., partly for salary, at eight guineas per month, he having been engaged in January, 1851; whilst other portions of his claim were for account-house allowances, for work done for the mine with carts and horses, for travelling expenses, advances for materials, and money paid to labourers, for some of which he had been sued. Mr. Reeves was formerly the London purser, when plaintiff was em-

ployed; Mr. Wolferton is the present purser. There were various defences to the action, and the evidence was very conflicting. The Vice-Warden gave judgment for the plaintiff for the full amount claimed; payment to be made in a month.

DUNN v. BRAY.—Mr. Thomas Dunn, of Tavistock, sued defendant as managing agent of the Wheal Surprise, in the parish of Whitechurch, Devon, for recovery of 72, 12s. 6d., partly for salary, as agent, at five guineas a month, from July to December, 1853; and the remainder for goods and materials supplied, work done, and money advanced. The plaintiff gave evidence, and a long correspondence was put in, between the plaintiff and Mr. Fuller, the company's secretary in London. At the end of the plaintiff's case, before the defence was entered on, at the suggestion of the Vice-Warden, an arrangement was agreed to that judgment should be given for plaintiff for 50/-, payment to be made in a month. His Honour gave judgment accordingly.

✓ ANGLO-CALIFORNIAN GOLD MINING COMPANY.

Owing to the late period of the week on which the meeting of the Anglo-Californian Mining Company was held, we were precluded from entering into any remarks on the final dissolution of that, the oldest of all the gold mining associations. It may be remembered that the company first came into existence under no very favourable auspices. Although but little was known of its formation in London, yet it was extensively advertised in the country, and in several counties quantities of shares were taken with avidity. Sir Henry Huntley, a retired naval commander, was dispatched by the then directors, as local superintendent; Messrs. Palmer, Cook, and Co. of San Francisco, were stated to be the bankers of the company; and a Mr. Tremane, who has never been discovered, was said to have obtained a favourable location there. On Sir H. Huntley's arrival he could not find this desired spot, he consequently did what he thought was the best under the circumstances, and immediately returned to England to put the directors in possession of the true state of affairs on the other side; and, from subsequent facts that have since come to their knowledge, it would have been well for them and the shareholders had he always exercised the same candour. At that period a change had taken place in the directory; men of position and character had been introduced; and believing from his name and status in society that he was a person in whom they could confide, this opinion being further strengthened by his apparent sincerity, he was again dispatched with equal powers. On arrival there, after a somewhat protracted residence in San Francisco, he informed them he was trying at the Keystone, and a short period afterwards he left that and went to the Caroline vein; letters now came home that time was required, this could not be had for a considerable period; then another delay took place because there were no hauls. So passed one season. Machinery was then sent out; this, owing to the floods, was submerged, and consequently was not available for another period. In the meanwhile, one would suppose he might have acquired a little judgment, and some knowledge of the country. By this time he must have been aware of the difficulties he had to contend with, and the climatic difficulties to be overcome; his experience would seem to have passed for nought. He gave about 7000/- for the Dickson Mine, which, after a limited trial, he abandoned. Promises and elaborate calculations were arriving by every succeeding mail. At one period the directors, by a fresh issue of shares, determined to increase their capital; this they could have done without any appeal to the public; shareholders applied, and at that period, the shares were as high as 30s. Sir Henry Huntley had, however, written them the machinery would all be up, and the large returns must be made; acting on his advice, the number of shares issued was considerably restricted, and a great many of the shareholders vented their indignation in angry letters, which were sent to several journals, this among the rest, and there published. By this time, Sir Henry had again distanced, the location now being Brown's Valley, which, according to all received opinions, is one of the richest in California. A box of specimens, stated to be taken indiscriminately from the lode, was sent to London, and found, on assay, to contain 35 ozs. of gold to the ton; the machinery was up, war was then commenced; whether to report himself to the Admiralty or confer with the directors, Sir Henry Huntley arrived in London; they could not, at the period he left, obtain water; he had, therefore, crushed some of the very inferior quartz, and this had yielded 6/- per ton; the rest, about 1000 tons, being of superior quality, and a further supply to be obtained in large quantities.

On the faith of these representations he was again sent out, the machinery was set to work, and in about from 24 to 48 hours broke down; it was, however, soon to be repaired; then came the water famine in due time, thus giving the gallant commander a respite for another season. During this time a mortgage had occurred, which the directors, on their own responsibility, had to raise money to pay off. Water at last is obtained, the crushing takes place, and after all these promises the quartz rises from 2/- to 27, 10s. per ton; and it is not until within a comparatively recent period the directors have known the onerous and disagreeable position in which they have been placed. From his own showing, backed by general report, instead of being at his post at the mines, the greatest part of the superintendent's time has been passed in San Francisco.

The directors now have liabilities to the amount of the sum of 14,000/-; a sum of 65,000/- has been expended. On condition of the whole of the property being given up to them unconditionally, it is, we believe, their intention to form, on the debris of the old, a new association, and this they believe can be effected for about 35,000/. A committee of shareholders has been appointed conjointly with them to carry out the effect the resolutions passed at the two last special meetings. It must be admitted that this may appear hard on the old shareholders, many of whom have purchased their shares at a premium, but under present circumstances we do not see they have any other resource. Those subscribing, though they may not get the amount they originally expected, may, if the property should fortunately retrieve itself, at least obtain all they have expended and a moderate profit, though not at the extravagant rate they and others anticipated when the gold mines were first started. They have the property, the machinery is in order, water is attainable, a practical superintendent (Mr. Frankland) is on the spot, and there is every prospect that affairs will henceforth be managed in a different method and style than has heretofore been the case.

The directors propose in the new company, as a compensation to the old shareholders for the loss they have sustained, to give them, for every four shares they take in the new association a bonus of one share, thereby, on paying for four, they will receive five shares.

WEEKLY LIST OF NEW PATENTS.

GRANTS OF PROVISIONAL PROTECTION FOR SIX MONTHS.—T. B. DRAFT, of the Irish Engineering Company, Dublin: Manufacture of cast-iron pipes.—J. A. MONNIER, Marseilles: Transmitting motive-power.—G. H. PALMER, Adelaid-rod, Haarstork-hill: Furnace for generating heat.—W. HALL, W. WAITE, and E. WYLD, Birmingham: Steam-engine.—C. DEPAIS, Houssarditch: Roof lamp of railway carriages.—J. DAHLBERG, Copenhagen: Superheating steam (communication from Gustave Adolphe Hirn of Colmar, Haut Rhine, in the empire of France).—E. OWEN, Blackheath: Manufacture of gas, and in the obtaining of products arising in such manufacture.—P. A. LE COEUR, FONTAINE-MOREAU, Rue de l'Echiquier, Paris: New electro-motive-engine.—W. H. BROWN, Albion Iron and Steel Works, Sheffield: Improvements in steam-hammers.—R. A. BROOKMAN, Fleet-street, patent agent: Manufacture of artificial stone and building and paving materials.—A. PRIEST and W. WOOTTON, of the Iron-Works, Kingston-on-Thames: Horse-hoes.

SMOKE PREVENTION.—Mr. Julius Caesar Hellmann, of Leipzig, has recently invented an ingenious contrivance for the prevention of smoke. The improvement consists in the alteration of the form of fire-grate. Hitherto the bars have been upright, and consisted merely of solid cubes of iron. The consequence was that when the coal was put into the feeding-box at the top and raked down over the bars a great deal of it fell through them, and was mixed with the ashes and lost. By Mr. Hellmann's plan, horizontal steps of iron are substituted for the ordinary bars, so that the coal is pushed down from the feeding-box it lodges on each step in succession, until it reaches the bottom, and the steps are so arranged to lap over each other that no coal can fall through. Another advantage is that the steps allow of the aperture between them being wider than usual, so that a plentiful supply of cold air can be admitted. This air, whilst it has the effect of increasing the body of fire, does not lessen the quantity of steam, as the air has to pass through the grate before it reaches the boiler. It is stated that a saving of 20 per cent. of fuel is effected; and at one works where it has been adopted the weekly consumption of coal has been reduced from 16 to 11 tons. The working is most successful; and, although but four or five have been erected in this country, upwards of 700 have been in operation in different parts of Germany for upwards of two years.

PRESERVING WOOD, METALS, &c.—Mons. C. F. L. OUDRY, of Paris, has some improvements, which consist in the application of copper or other metals on iron, zinc, and other metals and their alloys, and also upon wood, paper, cardboard, and stone, having first covered them with an isolated coating of a composition susceptible also of preserving, waterproofing, metallising them, and which coating is a conductor of electricity. The copper is applied to any desired thickness by ordinary electro-chemical means, and serves to preserve the metal or other substances thus covered from oxidation by the action of the air, water, or the humidity of the earth. This new process may be most advantageously applied to covering the hulls of iron and wood boats of any dimensions. The isolating composition may be variously composed, according to the nature, thickness, and proportions of the articles to be operated upon; thus, for covering the hulls and other parts of an iron boat, either plate before being set together, or in a single piece, and by one operation, after being united, the composition is used much thicker than when covering statues, vases, and other delicately chased articles. The composition may be made of metal or metallic salts, combined with essential oils or greases, and resins, gums, bitumen, or asphalt, according to the nature of the articles to be covered over, and a conducting property is given by adding copper, graphite, or other metallic powder. It is therefore upon the said isolating coating, which is proof to the action of sea water, or water strongly acidulated, that the copper or other metal is precipitated direct by means of electricity. Although the adherence of the isolated coating to the metal and of the deposited metal to the coating thus obtained is satisfactory, to ensure a more perfect result, especially in the case of iron vessels, on which copper is to be deposited, holes are pierced at intervals in the united plates, in which, after the copper deposit is effected, rivets are introduced, which are counter-sunk and bolted, by means of nuts, to the interior of the wrought-iron plates. These rivets tend to prevent any parts of the deposited copper from being removed by the pitching or rolling of the vessel. Under the head of each of the rivets is placed a washer, made of caoutchouc, or other waterproof material, which, after the rivet has been fixed down, prevents sea water from entering. The articles having received a coating of the composition, are immersed in a bath of sulphate of copper, and allowed to remain there from two to ten days, or even a longer time. In the event of the isolating coating on the metal not being perfect, the copper deposited by electricity would become pulverulent, of an earthy brown, and removable without difficulty, and the coated metal would not be protected. Other means are also employed to keep the copper in juxtaposition with the isolating composition; thus, in lieu of holes for the reception of rivets, as before described, it is optional, before any operation has been effected, to fix at intervals on the united iron plates copper rivets with screw heads, adjusted and prolonged with a barbed stem, so as to cause the deposited copper to adhere strongly to the stems or rivets, and be held by them. The adherence of the copper to the iron may be increased by making cavities on the external part of the edge of the united plates, so that the copper deposited in these cavities may be kept firmly held in them. Iron vessels covered with this composition, and afterwards with a deposit of copper, will last a much longer time, and will combine the advantages possessed by wooden vessels with copper sheathing. In case of casualties at sea, by which the copper coating on the hull of a ship might be partially removed, the isolated coating will prevent the galvanic action, which would rapidly destroy the iron, from taking place, and will enable repairs to be easily effected. The mode of applying my process to other articles that it may be desirable to cover and preserve varies according to the nature, form, dimension, or kind of article operated upon.

MARRIED.—August 7, at the Friends' Meeting-house, Neath, Mr. Charles Price, of Neath Abbey, to Hannah Isabella, eldest daughter of Mr. Joshua Richardson, C.E., Neath.

Mining Correspondence.

BRITISH MINES.

ABBEY CONSOLS.—E. Williams, Aug. 18: The eastern level is in a good ore-lode, and the lode is getting wider as we drive in the level, and it will yield by its present appearance about 8 cwt.s. of ore per fm. The 14 fm. level is producing good bunches of lead ore, and it will yield about 7 cwt.s. of ore per fm. The western level is not looking so well as last reported on, but there is a good ore lode in the end still, and it will yield about 9 cwt.s. of ore per fm. No. 1 stope, in back of the same level, will yield 8 cwt.s. of ore per fm.; No. 2, 15 cwt.s. of ore per fm.; and No. 3, 10 cwt.s. of ore per fm. This mine is improving daily, and you are able to understand that by the quantity we have dressed, there was only 15 cwt.s. of ore in the bin on Aug. 3, and there is to-day 5 tons, and I have sent to the store-house this month 5 tons 5 cwt.s. of ore; and the reason that I have not sent more is, that our carrier was otherwise employed, but he will take the whole down again to the store-house before the end of the month. The dressing operations are going on satisfactorily, and the round budget is working well; we shall dress 20 tons this month.

ALFRED CONSOLS.—M. White, Aug. 18: The lode in Field's engine-shaft, sinking below the 140 fm. level, is from 2 to 2½ ft. wide, composed of muriatic and spar. No change in the lode in the 140 ft. level, which is now full of water. In the 10 we still continue opening out on the branch of solid ore going to the north-west; the branch continues solid, and much of the same size as before; we have opened along its course about 2½ fm., and shall now continue driving on this string, as in the direction in which we were driving before the lode seems squeezed up, and the ground very hard, that by the side of the string being decidedly easier to drive, and of a more kindly nature. In the adit level, stopping east of engine-shaft, the lode is very good, yielding on an average about 20 cwt.s. per fm. In the stope west of this level we have now risen up almost to surface, and shall, therefore, discontinue this part of the stope, but there is still a good deal more ore ground to take away nearer the shaft. The wheel-pit is all complete, and we have written to request that men may be sent to erect it. Our men are making the additional pulley stands and rods; we hope it will be in course of working in six weeks. We have now a good pile of ore accumulating, which we intend to crush as soon as the water will permit, having managed to draw a fair amount of stuff.

EAST FOWEY CONSOLS.—Captain Dale writes, Aug. 21: The ground in the engine-shaft is much improved, and the men are now sinking about 1 fm. per week. We have broken good spots of yellow ore on Sharland's lode this week; it is 2 fm. wide. No other alteration to notice.

EAST FRONGOCHE.—Thos. Pascoe, Aug. 19: In the 30 east, on the main lode, we are driving north from the present end by four men, merely to prove the lode at this point. Since my last there have been only two men in this level, and the ground being very hard very little has been done since setting-day. The men in the 30, on the south lode, are making fair progress—ground a little more favourable for driving, and presents a very promising appearance, and occasionally producing some spots of lead. I intend as soon as I can procure more men to put them in this level, in order to push it on with all possible speed.

EAST SORTRIDGE.—A. Down, Aug. 21: The lode at No. 1 trial shaft is composed of good gossan, capel, quartz, prian, muriatic, and spots of black copper ore, water increased. I may say, the deeper we sink in this part of the sett the more promising we find the lode, and I believe at no great depth large deposits of copper ore are to be found; I, therefore, strongly recommend a vigorous development of the same.

EAST TAMAR CONSOLS.—G. E. Tremayne, Aug. 19: We continue to drive the 70 north, but our progress is slow, in consequence of the hardness of the ground. In the 46, driving east, we have met with a branch upon the slide, which is yielding good stones of lead, and promises well for the lode when cut.

EAST TOLGUS.—Aug. 16: The ground in the deep adit cross-cut, driving south from the new shaft, continues favourable, and the men are making good progress. The ground in the engine-shaft is a little more spare for sinking below the 34 fm. level. The lode in the 12 fm. level, driving west of the engine-shaft on the caunter lode, is 10 in. wide, unproductive. The lode in the 12 fm. level, driving east of the engine-shaft, has not been taken down in the past week. The lode in the 22 fm. level, driving east of the engine-shaft, is 4 ft. wide, yielding from 4 to 5 tons of ore per fm.—nearer 5 tons than 4, and worth 7/- or 8/- per ton, and is still kindly for further improvement. The lode in the 34 fm. level, driving east of the engine-shaft, is small and poor. The lode in the same level, driving west, is 10 inches wide, producing some good stones of ore, and has a promising appearance. The lode in the 29 fm. level, driving east of flat-rod shaft, is 2 ft. wide, producing saving work. The lode in the same level, driving west, is 3 ft. wide, producing good stones of ore. We shall commence cutting plat and barrow road by the side of the flat-rod shaft at the 30 on Monday morning: therefore the both ends will be suspended while we are cutting plat, &c.

EAST WHEAL ROBERT.—A caunter lode has been cut here, which bids fair to be an important feature to this mine.

EAST WHEAL RUSSELL.—W. Metherell, Aug. 21: The 66 is looking kindly, carrying a leader of grey ore and muriatic all the height of the end—about 3 to 4 fm. wide; the other part of the lode we are carrying is composed of gossan, prian, and quartz, with a flock of the south wall. We have cut out the lode about 2 ft. in the cross-cut driving north, to the west of Homersham's shaft, which has produced some good stones of ore; the lode is very hard in the present end. Homersham's shaft is sunk 9 ft. below the 55. The 55 is just the same as last reported, producing some saving work; the end is driven east upwards of 50 fms. from Homersham's shaft, and the rail-road into the present end taking the stuff to Hitchins's shaft.

FEED DONALD.—John Muffett, Aug. 18: The branch of ore in the winze sinking under level B is looking well; it is perhaps rather early to value it, as we have only commenced to sink one week; but as far as we have seen, it is worth 1½ ton of ore per fm. The ground is rather hard for sinking.

GELLIRHEIRON.—J. Jones, Aug. 15: Our stopes over Bonsall's level, for the past week, have yielded good ore, leaving a good profit on the working expenses. The slopes over Francis's level, now stopeing by two men, are improving fast, and the western end of the ground yields a good supply of ore. The air is bad in rising, and future reports will be called Page's shaft; has been commenced from surface, for the further effectual working of this part, and is now down 7 fms. Eight men are put to sink a sump from the day level to meet the rise from Woodland's vein, and we may expect shortly to bring the discovery into full operation. At Matthews's, we are driving on a parallel vein with Milver vein, with good indications.

BRYNFORD HALL.—Wm. Francis, Aug. 21: Our communication from the fore-vest of the 50, on Milver vein to the upper workings, is just completed, and we shall be enabled to continue them further westward with full advantages. A shaft (which in future reports will be called Page's shaft) has been commenced from surface, for the further effectual working of this part, and is now down 7 fms. Eight men are put to sink a sump from the day level to meet the rise from Woodland's vein, and we may expect shortly to bring the discovery into full operation. At Matthews's, we are driving on a parallel vein with Milver vein, with good indications.

BRYNTAIL.—J. Roach, Aug. 21: This week the lode in the 10 fm. level east has been wider, and produced more ore than in the previous week; the indications are good, consequently I expect it will enhance in value as we proceed further east. The lode in the winze under the 10 is still producing 1 ton of ore per fm.; this ore is undoubtedly connected with the bunch driven through in the 20. The winze sinking under the 20 is in mixed ground (gritstone and clay-slate), in which the lode is 18 in. wide, containing fine stones of ore. I imagine a portion of the lode is still standing to the north of the present 20 fm. level; if so, I shall drive a cross-cut to intersect it. The eastern slope is still producing 10 cwt.s. of ore per fm. The western slope is without alteration. I intend sending a parcel of ore to Newton to-morrow.

BUTTERDON.—T. Grenfell, Aug. 20: The engine-shaft is sunk 3 fms. below the 43; the western part of the lode has not been taken down since the 13th inst. The lode in the winze under the 10 is still producing 1 ton of ore per fm.; this ore is undoubtedly connected with the bunch driven through in the 20. The winze sinking under the 20 is in mixed ground (gritstone and clay-slate), in which the lode is 18 in. wide, containing fine stones of ore. I imagine a portion of the lode is still standing to the north of the present 20 fm. level; if so, I shall drive a cross-cut to intersect it. The eastern slope is still producing 10 cwt.s. of ore per fm. The western slope is without alteration. I intend sending a parcel of ore to Newton to-morrow.

CAMBORNE CONSOLS.—W. Roberts, Aug. 19: In the 20 and 10 fm. levels, driving west on the caunter, the lode continues to produce good stones of yellow ore.

CARDON CONSOLS.—Capt. Rich writes, Aug. 21: There is a little water oozing out of the end of the 38 fm. cross-cut, under adit; this appears as though we were near the lode.

CARRACK DEWS.—W. Hollow, jun., M. Dunn, Aug. 18: The lode in Battery shaft is declined; it is 2 ft. wide, composed chiefly of spar, with a little ore, but not enough to value. In the 42 east the lode is 18 in. wide, and worth 3d. per fm. We are sinking a winze from the 30 to communicate with a rise from the 42 for ventilation; in this rise the lode is worth 40s. per fm. In the winze below the 20, on south lode, the lode is 15 in. wide, and worth 5/- per fathom. In the 30 east the lode is small and poor. At Eley's shaft, the water is forked, the plunger-lift at work, and the men in their places. In the shaft the lode is at present poor, but promising. In the 32 east the lode is worth 5/- per fm.; in the same level west the lode is 12 in. wide, producing a little copper, but not enough to value. We are getting on as fast as possible with our sampling.

COLLACOMBE.—S. Mitchell, Aug. 19: During the last week the 62 fm. level, west of Morris's engine-shaft, has been driven 9 ft.; there is no alteration in the lode to notice. About 3 fathoms have been stopeed in the bottom of the 50, lode worth from 35/- to 40/- per fm.; about 6 fms. have been stopeed in the back of the 50, lode worth, on an average, from 25/- to 30/- per fm. The 40, west of the western shaft, has been driven 6 ft., and the lode has improved, being 2 ft. 6 in. wide, and composed of quartz, prian, capel, and rich copper ore. All other points continue as last reported on.

CUBERT UNITED.—J. Trewin, Aug. 16: The lode in the engine-shaft is 12 in. wide, composed of quartz, worth 10 cwt.s. of lead per fm. The lode in the 76, south end, is not so rich for lead as last reported, worth at present 5 cwt.s. per fm. The stope in back of this level are much the same as last stated, worth 10 cwt.s. of lead per fm. The lode in the north end is 12 in. wide, composed of quartz, muriatic, &c., producing some good stones of lead. The lode in the 76, south of the sump winze, is 18 in. wide, composed of quartz and muriatic, with spots of lead. The lode in the 66, north end, is for the present split into two branches, the eastern, or main branch, is producing a little saving work for lead. The stope in back of this level, north of Bodilly's rise, are worth 5 cwt.s. of lead per fathom. The stope south of the engine-shaft are worth from 15 to 18 cwt.s. of lead per fm. The lode in the 66, south of Towsey's shaft, is 16 in. wide, composed of quartz, prian, muriatic, and lead, worth of the latter 3 cwt.s. per fathom; a very promising looking lode. The stope in back of the 56, north of the engine-shaft, are worth 4 cwt.s. of lead per fm. We have on the mine, dressed and undressed, about 22 tons of good lead ore.

CWN DAREN.—E. Evans, Aug. 20: The lode in the 50 west is small, chiefly composed of spar, with spots of copper and lead, but nothing worth saving. The stope in the back of the 40 west is not so good for copper as it has been—now worth 5 cwt.s. per fm. The stope in the back of the 30 is turning out saving work for lead.

DAREN.—M. Francis, Aug. 15: The ore bargains in this mine are without any change worthy of notice. We have now got Francis's level under the Level Coed area, and although it is not ore in Francis's level, no doubt we shall find that the shoot continues downwards, with probably an intermittent piece of unproductive rock in this place. I hope we may be able to get a good deal of ore in the lode from this towards the old mine when we have ventilated it, and then we shall be able to take up Oliver's level as a work of permanency. Oliver's level, and the 10 fm. level under it, are the levels eventually to bring the old mine back to its former yield, which I know from good evidence gave between 7000t. and 8000t. a year profit. We must not forget, in carrying out this tedious piece of mining, that these levels—Francis's, Oliver's, the 10, and a series of levels below, would all have to be driven, even if we had no ore in the eastern side of the mountain.

DEVON WHEAL BULLER.—W. Neill, Aug. 21: We have no material alteration to notice in any part of the mine since last week, with the exception of the 32 fm. level west, which is very much improved, this being the deepest point of our operations on the course of the lode. The lode in the present end is about 3 ft. wide, of the most promising character, composed of prian, muriatic, and ore, yielding of the latter about 1½ ton of good ore per fm., with every prospect of a future improvement. We are getting on with our dressing as fast as possible, and expect to sample on the 29th inst. 40 tons of good quality ore.

DRAKE WALLS.—T. Gregory, Aug. 18: We completed the fixing of the new boiler on Saturday night, connected steam pipes, bolted the flues, fire front, &c., and lit the fire to dry up the flues and raise steam. We have this morning again commenced the drawing from the 29 fm. level; everything appears to go perfect in connection with the new boiler. We must now get the pipes to supply a clear stream of water. The two parcels of iron have left the mine, No. 2 parcel we shipped on Saturday, No. 1 this day. There is no change to notice in the south cross-cut since my last. Footway shaftmen are engaged in lengthening the same from the 40 to 50, so as to admit of fixing the larger lifts. I hope you will give us the necessary instructions as to Lamey's materials, and the 10 and 11 fm. pumps for sale on Thursday next, the 21st inst., at Wheal Hugo. We shall be glad to learn that the contract for the boiler tube is accepted. Matthew's shaftmen have been assisting in putting in guides in Matthew's for three days; all is now complete, and the sinking of said shaft is progressing satisfactorily. There is no change to notice in the different levels and stoves since my last. The foundation of engine house would have been laid this day, but it so happens that a small cross-course goes through the intended site for the house, which has caused an unsettled rock on one side; we hope to get to firm rock all through

day, and expect Mr. West to-morrow. We have lime, sand, and stone at hand for the masons. We hope to commence to burn tin on Wednesday next; the ovens have been idle in consequence of putting in boiler; the footway shaft is nearly suspended from drawing.

EAGLERBROOK.—H. Tyack, Aug. 17: Since last report, we have been much hindered by want of water in the hot and dry weather, and have hardly been able to do anything in the 20 fm. level, which is now full of water. In the 10 we still continue opening out on the branch of solid ore going to the north-west; the branch continues solid, and much of the same size as before; we have opened along its course about 2½ fm., and shall now continue driving on this string, as in the direction in which we were driving before the lode seems squeezed up, and the ground very hard, that by the side of the string being decidedly easier to drive, and of a more kindly nature. In the adit level, stopping east of engine-shaft, the lode is very good, yielding on an average about 20 cwt.s. per fm. In the stope west of this level we have now risen up almost to surface, and shall, therefore, discontinue this part of the stope, but there is still a good deal more ore ground to take away nearer the shaft. The wheel-pit is all complete, and we have written to request that men may be sent to erect it. Our men are making the additional pulley stands and rods; we hope it will be in course of working in six weeks. We have now a good pile of ore accumulating, which we intend to crush as soon as the water will permit, having managed to draw a fair amount of stuff.

EAGLERBROOK.—H. Tyack, Aug. 17: Since last report, we have been much hindered by want of water in the hot and dry weather, and have hardly been able to do anything in the 20 fm. level, which is now full of water. In the 10 we still continue opening out on the branch of solid ore going to the north-west; the branch continues solid, and much of the same size as before; we have opened along its course about 2½ fm., and shall now continue driving on this string, as in the direction in which we were driving before the lode seems squeezed up, and the ground very hard, that by the side of the string being decidedly easier to drive, and of a more kindly nature. In the adit level, stopping east of engine-shaft, the lode is very good, yielding on an average about 20 cwt.s. per fm. In the stope west of this level we have now risen up almost to surface, and shall, therefore, discontinue this part of the stope, but there is still a good deal more ore ground to take away nearer the shaft. The wheel-pit is all complete, and we have written to request that men may be sent to erect it. Our men are making the additional pulley stands and rods; we hope it will be in course of working in six weeks. We have now a good pile of ore accumulating, which we intend to crush as soon as the water will permit, having managed to draw a fair amount of stuff.

EAST FOWEY CONSOLS.—Captain Dale writes, Aug. 21: The ground in the engine-shaft is much improved, and the men are now sinking about 1 fm. per week. We have broken good spots of yellow ore on Sharland's lode this week; it is 2 fm. wide. No other alteration to notice.

EAST FRONGOCHE.—Thos. Pascoe, Aug. 19: In the 30 east, on the main lode, we are driving north from the present end by four men, merely to prove the lode at this point. Since my last there have been only two men in this level, and the ground being very hard very little has been done since setting-day. The men in the 30, on the south lode, are making fair progress—ground a little more favourable for driving, and presents a very promising appearance, and occasionally producing some spots of lead, that by the side of the string being decidedly easier to drive, and of a more kindly nature. In the adit level, stopping east of engine-shaft, the lode is very good, yielding on an average about 20 cwt.s. per fm. In the stope west of this level we have now risen up almost to surface, and shall, therefore, discontinue this part of the stope, but there is still a good deal more ore ground to take away nearer the shaft. The wheel-pit is all complete, and we have written to request that men may be sent to erect it. Our men are making the additional pulley stands and rods; we hope it will be in course of working in six weeks. We have now a good pile of ore accumulating, which we intend to crush as soon as the water will permit, having managed to draw a fair amount of stuff.

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Mines : There has been a marked improvement in this mine since my last. This month we have driven east on the lode about 4 vars ; this has improved materially its width, as well as in the quantity of ore produced, but this is usual containing an admixture of zinc and copper with antimony. The zinc assay, 38 ozs. of silver per ton, the clear galena assay, 50 per cent. for lead ; but owing to an accident at the time of encapsulation, the quantity of silver was not ascertained. This ore will require more careful dressing, for which we are not at all prepared. I have been compelled most reluctantly to suspend operations for a time, owing to a scarcity of hands, powder, and other appliances, as well as because I have no place prepared for the ore that is already broken. The mine looks so favourable, that it will be necessary materially to increase our operations there on the first favourable opportunity. This I cannot do at present ; nor can I make the necessary surface erections for a while. We have on hand 10 tons of ore, nearly all produced in driving 7 vars of ground.

Excavation Works : The fine connected with the chimney is finished, but a much greater quantity of brick having been used in its construction than we had supposed, we are compelled to make more before we can commence building the furnace. The cracks in the wall have opened gradually, but no portion has fallen."

ON THE PROCESSES OF REDUCING SILVER ORES BY AMALGAMATION.

BY EVAN HOPKINS, ESQ., F.G.S., ETC.

Among the various operations of metallurgy, the process of amalgamation forms one of the most interesting, both from the value of the ores operated upon, and the nature of the chemical affinities which are brought into action. This process of saline decomposition with sulphurates, and amalgamation with quicksilver, is never resorted to when the ores contain a large proportion of lead ores, and more especially in districts where fuel is obtainable at a cheap rate, inasmuch as the minerals can be smelted out, and the silver extracted by cupellation.

In Mexico and South America, the argentiferous formations predominate in what are technically called "dry ores"—viz., argentiferous pyrites, metallic silver, red, grey, and antimonial silver ores, with blende, in quartz and slate, and but sparingly impregnated with lead ores. Hence the cause of the process of amalgamation being adopted, and the smelting process unavailable, in such mineral districts. However, it must be borne in mind that, be the process of reduction what it may, it is attended with a certain amount of cost; consequently, the ore, to pay for such a treatment, must be brought by dry picking, or by stamping and water concentration, to a sufficient value to pay for that cost, and to leave besides profit on the whole operation.

In entering into this subject, I am not guided by others, or by any scientific works, but by actual operations carried on during many years. I have had a very considerable practical experience in these matters, not alone as a mere superintendent, but also as one who has been often obliged personally to attend to the details of the respective departments, and to teach the natives how to do their work. I have been compelled to attend to the underground works as well as to the dressing, assaying, and amalgamating departments, and have had to erect all the works besides, without the aid of the usual qualified agents, for some years in the Santa Ana establishment. It will, therefore, be observed that my opinion on such question is not founded on mere laboratory experiments and the statements of others, but on large operations carried on by myself. Indeed, when I took charge of the silver mines of Mariquita in 1837, I was without a mine captain for upwards of 12 months, and also reduction officer, engineer, or even a doctor, in a hot and very unsightly locality.

I found the mine poor, apparently worked out, badly ventilated, dilapidated, and the machinery in complete ruin from various causes. Nevertheless, the concern was taken in hand. I made new discoveries underground, set all the bargains myself, made all the plans and sections, surveys, erected new surface works, pumping machinery, stamping mills, furnaces, barrel and grinding mills, in a more convenient locality (which are still at work); and, in short, brought the concern, with but little assistance, into a safe, systematic, and profitable state—in which condition, with a large amount of ore in reserve, I left it in 1842.

I am happy to state that this establishment is now one of the richest silver mines in South America, and the discoveries I then made underground are still improving. I mention these particulars merely to show that foreign managers are obliged to do occasionally, and that they must thoroughly understand their business, and attend to themselves, in order to conquer the many difficulties and obstacles they have to contend with in foreign countries. After an establishment is well formed, and the agents trained to their respective departments, a good accountant may then act as a manager, with apparent credit.

In Mexico, at the commencement, the English companies failed in introducing the Freiberg system of amalgamation, evidently from the want of persons competent to carry it into effect, and they continued the native method—the *patio*. In South America, we succeeded in establishing the barrel process at starting; but, in order to determine the relative merits of both the Freiberg and Mexican processes of amalgamation, we had a certain quantity of silver ores treated in both ways. It was found that the loss of silver and quicksilver was excessive by the *patio*, the process slovenly and very slow, and irregular in its results; whereas, the loss of quicksilver by the barrel was only 2 lbs. per ton of ore treated, and the loss in silver from 10 to 12 per cent., and the product obtained with great dispatch and regularity. The cost of treatment by the former was quite as much as that incurred by the latter, with all its machinery. Hence the barrel process was preferred, and continued at Mariquita and Pampanga.

The barrel process of reducing silver ores may be thus described :—The ores, after having been concentrated to a certain value (say, 100 ozs. per ton), and reduced into very fine powder, are spread into flat heaps, and dried and mixed with ground common salt. The mixture is then gradually calcined in reverberatory furnaces, and the chemical action commences. The sulphur of the sulphurates evolves, and contaminates the whole mass. A stream of air is then admitted in sufficient quantity to convert the liberated fumes of sulphur into anhydrous sulphuric acid. The salt in the mixture becomes by this element decomposed. The soda unites with the sulphuric acid, forming the sulphate of soda. The chlorine is liberated, and, having a strong affinity for the silver, combines with it, together with the other metals in the compound, and thus forms chlorides. The efficiency of this process depends on *sodium* decomposition, acting at the same instant of time—i.e., the affinity of the acid for the soda, and the affinity of the chlorine for the silver. Hence the importance of perfectly raking the mixture in the furnaces, to ensure the decomposition of the salt, and the constant contact of the reagents in the mixture, to convert the sulphurates into chlorides. This process being completed, the calcined and decomposed ores are re-ground into impalpable powder in flour mills, and then put into rotating horizontal barrels, with water, iron scrap, and quicksilver, wherein the compounds are thoroughly mixed together for about 20 hours.

The chemical action which ensues may be considered as follows :—The mixtures are composed of the ground matrix, with sulphates of soda, chloride of silver, and other metals, with an excess of acid. The sulphuric acid combines with the water, and by degrees, as the barrels turn round on their axes, generates great heat. The iron then decomposes the water by combining with its oxygen, and the hydrogen is evolved. The barrels become highly charged with this gas in a very few hours; the chlorine of the chlorides leaves the metals with which it was combined; these are immediately absorbed by the quicksilver, whilst the two gases unite, and form hydrochloric acid. After the usual period allowed for the operation has elapsed, the mixture is further diluted, and the quicksilver is discharged, conveyed into strong bags, then filtered, and the amalgam distilled in the usual way.

The sulphate of soda is sometimes preserved, and also converted into a carbonate of soda, but not in the interior of South America, as it could not be disposed of at a profit. When the argentiferous ores contain payable quantities of copper and gold, the first metallic precipitant put into the barrels is copper, which is taken out and replaced by iron after the quicksilver is discharged.

The copper is obtained by precipitation from its solution in the barrels or separate tanks. The gold is again partied by dissolving the metallic silver in acid, leaving the gold as a residue of brown powder, which is filtered, washed, and melted. The silver is converted from its solution into a chloride, then decomposed with weak acid and zinc, and the separate metals delivered in ingots.

Such is a brief outline of this old-established process, as carried on in America on the large scale. The following will give an idea of the *patio* process of reducing silver ores :—

The ores, after being selected and brought to a given value, are ground to the consistency of fine mud, and spread out into large flat, circular heaps, or pavements (called in Spanish *tortas*), after having been well mixed with common salt. To these flat heaps (*tortas*) are added given quantities of pulverised and calcined sulphates of copper and iron (converted into sulphates in closed ovens), which, after being thoroughly mixed with the ores, generates considerable heat. The chemical action then commences. By the action of the moisture of the mixture, the sulphates are decomposed and dissolved, and the sulphuric acid is set free. The sulphuric acid thus liberated decomposes the salt, and combines with the soda; whilst the chlorine of the salt, having a stronger affinity for silver and other metals, combines with the latter, and forms chlorides of silver, copper, and iron. When the action happens to be too intense, a little lime is added to cool the mixture, by uniting with the excess of acid, and forms sulphate of lime. After the heaps have been well mixed and kneaded by the feet of mules, quicksilver is sprinkled at intervals over the mass, and is thoroughly incorporated with the mixture by the constant treading of the animals, until the testing (*tentaduras*) indicates that all the chloride of silver is reduced into amalgam, and the latter found in a proper consistency. These heaps are then washed in the *laadero*, in large dolly tubs, with an excess of water. The refuse is carried away with the water, and the charged quicksilver is left behind in the tubs, with some of the heavy sediment. It is then filtered through strong canvas bags, and the amalgam distilled in retorts in the usual way.

The cost and efficiency of the above processes depend much on the arrangements of the works and the management. The actual cost of the reduction process at Santa Ana whilst under my superintendence, from 1837 to 1842, was, on an average, \$22 per ton, including \$11 for salt; and the losses in the treatment about 10 per cent. of silver, and 2 lbs. of quicksilver per ton, including the losses in distillation and refining.

Mr. John Batters has furnished the following remarks on the Commercial and Mining business of the week, ending Friday night :—

The state of the weather, and the absence from town of the principal dealers in the Stock Exchange, has tended to restrict business, and the market has ruled dull throughout the week, prices having scarcely varied. To-day, the tone is generally firmer, and Consols close 93% to 95%. Money has been more abundant, and with fine harvest weather, we have little doubt of our markets rising. Foreign stocks have participated in the general dullness, and prices remain without change. Turks, 103% to 105%; New ditto, 103% to 104%; Mexican, 22% to 23%.

Railway shares have been in good demand all the week, and the leading stocks close 1 per cent. higher. Birmingham, 107½ to 107¾; Great Western, 65% to 65%; South-Western, 53% to 53%; Midland, 84% to 84%; Leeds, 38% to 38%; Caledonian, 28% to 28%; Dover, 22 9/16 to 22 11/16; York and North, 29% to 30%; Berwick, 21% to 21%; Eastern Counties, 9% to 9%; Northern of France, 42% to 42%; Lyons, 56% to 56%.

Banks and miscellaneous shares have been in increased demand. National Discount shares have been largely bought for investment; the old and new shares leave off at 1% to 1½ prem., with an upward tendency. The call on Ottoman Bank reduced the shares to 1%, they however, close 1% to 1½ prem. Omnibus, 1-16 to 3-16 prem.; Egypt, 4% to 5% prem.

In foreign mines, a very limited business doing. Cobras, 3½ to 4; Fort Bowen, 2½ to 3; United Mexican, 3½ to 3½; Imperial Brazilian, 2½ to 3½; Cobre, 50, 51.

Dividend British mines have been in good demand during the week, with a considerable business doing in some of the leading shares. Alfred Consols, 14; Bryford Hall, 120; Devon Great Consols, 30%; Ding Dong, 42%; Mary Ann, 34 to 35; North Basset, 35 to 31; Par Consols, 2½ to 21; Rosewarne, 67% to 70%; Sortridge Consols, 2% to 2%; South Frances, 31½ to 32%; South Tamar, 3; Trelew, 21 to 22; Treweth, 3½; West Caradon, 13½ to 135; Bassett, 250 to 232%; Buller, 270;

Wheat Kitty (Levant), 10%.

Progressive mines have been in fair request. Boiling Well, 214 to 10; Bristol,

4½ to 5; Clifiah and Wentworth, 12 to 13; East Bassett, 43 to 44; East Rose, 20; Grambler and St. Aubyn, 7½; Great Alfred, 4 to 4½; Lady Bertha, 4%; St. Austell Consols, 1 to 1½; Strat Park, 5 to 5½; West Frances, 21 to 22; West Wheal Bolton, 55; and Herward United, 47½.

* * * With the last MINING JOURNAL was given a SUPPLEMENTAL SHEET, containing—Manufacture of Iron and Steel Without Fuel—by Mr. H. Bessemer; the Effect produced upon Beds of Coal by the Working Away the Over or Underlying Seams—by Mr. George Elliott; proceedings of the following mining companies: the Wildberg, Great Consolidated, Peninsular, Iberian, and Castilian; Rating of Mines to the Poor; Centrifugal Pumps; the Metal Trades, &c.

The Mining Market; Prices of Metals, Ores, &c.

METAL MARKET, London, August 22, 1856.

COPPER.	E. s. d.	BRASS (sheets)	p. lb. 10d.-10½d.
Copper wire	p. lb. 1 1½-0 1 2	Wire	10d.
ditto tubes	" 1 1½-0 1 3	Tubes	13d.-14d.
Sheathing and bolts	" 0 1-	QUICKSILVER	p. lb. 1 9d.
Bottoms	" 0 1 ½-0 1 1	SPLINTER.	Per Ton.
Old (Exchange)	" 0 0-	Foreign	25 0 0-
Beef selected	p. ton 110 10 0	To arrive	24 15 0-
Tough cake	" 107 10 0-	In sheets	32 0 0-
Tile	" 107 10 0-	IRON.	per Ton.
South American(nom.)	" 1 0 0 0	STRIPS.	per Ton.
		TIN.	
		English, blocks	127 0 0-
		Ditto, Bars (in barrels)	128 0 0-
		Bars, Refined	133 0 0-
		Bars	(nom.) 126 0 0-126 10 0
		Straits	" 125 10 0-
		TIN-PLATES.	
		IC Charcoal, 1st qua. p. ox. 1 16 6-	
		IX Ditto 1st quality	2 2 6-
		IC Ditto 2d quality	" 1 14 0-
		IX Ditto 2d quality	" 2 1 0-
		IC Coke	" 1 10 0-1 10 6
		IX Ditto	" 1 16 0-1 16 0
		Yellow Metal Sheathing	p. lb. 10½d-
		Wetterstedt's Pat. Met.	p.cwt. 2 2 0
		Stirling's Non-laminating, or Hardened	9 0 0-9 2 0
		Surface Hails, p. ton	
		Stirling's Patent	Glasg. - 5 5 0
		Toughened Pigs	Ditto Wales 4 0 0-4 5 0
		Indian Charcoal Pigs	" - 7 0 0
		MANGANESE.	(21 cwt.)
		Ground	6 4 0-7 8 0
		Giesen Lump	" 5 0 0-5 5 0
		Nassau ditto	" 4 5 0-4 7 0
			At the works, 1s. to 1s. 6d. per box less.
			+ Four months' credit, and free on board at Rotterdam. The per centage of peroxide is about 60 for Nassau lump, 64 to 65 for Giesen, and 66 to 73 for ground.

REMARKS.—Our market has been steady at previous quotations, and it seems likely, excepting slight fluctuations, metals may continue at current rates for some little time to come; the demand, although, in most instances not active, yet appears sufficient to enable holders to obtain the quoted value; and, as far as can be ascertained, there is no probability of any extraordinary request prevailing for any one article in our trade.

COPPER.—The smelters are continually declining orders for manufactured sheet and sheathing for delivery at fixed dates, and it is not without difficulty they can be placed for delivery as soon as possible. The smelters just now suit their own convenience and not that of their customers, but we should doubtless find that if the price advanced they would soon again be open for further command, and courteously name a day by which the copper would be ready. Ores sold at Swansea on Aug. 19 amounted to 1792 tons; the quantity announced for sale on Sept. 12 is 2236 tons.

IRON.—Several contracts for English bars have exceeded the time stipulated for delivery; the works have turned out a less quantity during the excessive heat of the weather, the men being unable to face the furnace so long as usual; however, the last few days have helped them on a little, and the advance in price, which many masters were holding out for, is now not so likely to be obtained; nevertheless, the short supply tends to preserve much steadiness in the market. The price of Staffordshire iron is nominal, and bars can be purchased at a difference of 40s. per ton; buyers must exercise discretion in their purchases, or they may repeat when too late of having looked at the price and not the quality; merchants who do not understand the qualities, or have not the means of testing, should choose a well-known brand, although the price may be comparatively high—good iron will always sell. Scotch pigs have differed very little, 1s. or 1s. 6d. per ton at the most. The shipments last week showed an increase; but the market had not improved much so far as price is concerned. Yesterday, mixed numbers were 73s. 6d., and the market today exhibits a evident drooping tendency.

LEAD.—No change in value; the demand is unimportant.

SPELTER.—A few parcels have changed hands at 25d., and holders are not anxious to sell at this price.

TIN.—English tin has been reduced; block and bars, 2d. per ton, and refined, 3d. per ton; a decline was anticipated, but it was supposed 5d. or 6d.; however, this trifling reduction has brought up the price of foreign tin at least 20s. per ton.

In Holland, the deliveries of Banca have been heavy, 45,000 slabs; and the present quotation is 74½ fl., which makes it at 126½ 10s. in warehouse. Straits continues scarce.

TIN-PLATES are in fair demand.

STEEL.—Further sales of Swedish in kegs, rolled, at 19½ 10s.

LIVERPOOL, AUG. 21.—Our metal market has been again characterised by a quiet but steady tone, and the general report is that a moderate business is being done, to supply merely current requirements. Welsh bars continue to be in good request, and our quotations are well maintained, so much so, that if any alteration in price should be made it will doubtless be upwards. Dealers generally, as well as makers, are disposed to refuse orders, rather than submit to reductions which buyers wish to obtain, and still orders are not scarce.

From the Continent, a fair amount of specifications is being received, and it is anticipated that, with the addition of the demand which is confidently looked for from the United States within the next few weeks, there will be no probability of further reduced prices. The market for Scotch Pig-iron is gradually improving. The demand for shipping iron is increasing, and the local consumption is also becoming greater.

It is an undeniable fact that makers are short of stocks, and good merchantable brands, especially, are scarce. The stocks in storekeepers' hands cannot be increasing, but the contrary, and should shipments and consumption continue as at present, prices cannot but advance.

The shipments for the week are again large, being 11,222 tons, against 9655 tons in the corresponding week of last year, showing an increase of 1567 tons.

The reduction in the price of Tin on Monday was scarcely expected; still, the fall (2d. on common and 3d. on refined) is so small that it cannot be said to have had any effect. Tin-plates are firmly held at our quotations, and makers continue to be well supplied with orders for forward as well as for immediate delivery; they are not anxious, however, to take contracts to any extent for anything but immediate delivery. Copper is in good request, and it is not improbable that the price of this article will advance; smelters will sell only small parcels, and some refuse orders.

Lead is quiet at our rates. In other metals there is nothing to report. The following are the quotations :—Iron : Merchant bar, 8½ 5s. to 9½ 7s. 6d. per ton.—Tin : Common block, 127½ per ton; common bar, 128½; refined block, 133½.—Tin-plates : Charcoal, 1C, 36s. 6d. to 36s. per box; coke, IC, 29s. 6d. to 30s.—Lead : Sheet, 25d. per ton; pig, 24½ 10s.—Copper : Tile and tough cake, 107½ 10s. per ton; best selected ditto, 110½ 10s.; bolt and sheathing, 1s. per lb.—Yellow metal sheathing, 10d. per lb.

From Cherbourg, we are informed that "the Navy will make contracts, on Sept. 15, for 200,000 kilos. of Pig Copper (standard, 99-100), to be delivered in that port—one-fourth from Jan. 1 to 16, one quarter before Feb. 15, one quarter before March 15, and one quarter before April 15. Each underbidder must deposit first a sum of 30,000 francs, for assurance.—Also, for 30,000 kilos. of tin, to be supplied—one-half from Jan. 1 to 16, one-quarter before March 1, one-quarter before April 1. Provisionary deposit, 5000 francs, assurance, 10,000 francs."

From New York (Aug. 5), we learn that Scotch pigs have remained firm.

bar-iron and the best refined have been in demand. In lead, there is no alteration, and tin-plates are without change worthy of notice.

MINES.—The market for mining shares has been particularly buoyant this week. A good demand has been kept up for most of the divided mines, and sellers are only to be found at increased rates. Many good progressive mines have also been in request, and speculators and dealers are of opinion that the market has been at the worst, and that shares generally will take a turn upwards. It appears very certain that many shares can now be bought for a few shillings which, in other times, would have realised pounds, from the *bona fide* prospects of the mines; and discrimination and judgment on the part of buyers, acting upon

At Wheal Tehidy meeting, on Wednesday, the accounts showed—Ore sold, 7981. 1s.; calls received, 7627. 7s. 6d.—16651. 8s. 6d. Balance last audit, 2671. 9s.; mine costs and merchants' bills, April, May, and June, 1242. 4s.; sundries, 271. 2s. 6d.; leaving in favour of mine, 231. 12s. 9d. Messrs. W. A. Thomas, John Schofield, and Francis Cope, were elected the committee for the ensuing three months. Capt. W. Roberts and D. Lansbury reported favourably upon the prospects of the mine.

At Devon Burr Burra Mine meeting, on Tuesday, the accounts showed—Receipts, inclusive of last balance, 372. 10s. 1d.—Expenditure for the two months, 283. 3s. 6d.; leaving balance in hand, 87. 6s. 7d. The reports and balance-sheet were approved, and the committee re-elected till the next meeting. A call of 3s. per share was therewith agreed to, to meet the wants of the succeeding two months. The captain's reports were considered very satisfactory. The hard ground at the shaft had given place to a beautiful soft shaly slate, and by the end of next month the 40 fm. level was expected to be reached, when good results were anticipated.

At the Duke of Cornwall Mine meeting, on Aug. 14 (Mr. Jas. Brown in the chair), the accounts showed—Balance last audit, 1704. 18s. 11d.; merchants' bills, 239. 17s. 1d.; Mr. Dingie, 100/-; Mr. E. Norway, 100/-; labour cost, May and June, 1233. 8s. 11d.; London agency, 131. 18s. 3d.; interest and commission, etc., 13. 8s. 11d.—1717. 12s. 1d.—Calls received, 1706. 18s. 10d.; carriage, 151. 16s. 10d.; leaving balance against mine, 250. 16s. 5d. Capt. John Vercoe reported that they had about 200 tons of ore at surface, and calculated upon raising the same quantity this month.

At the Bronfydd Mine special general meeting, held yesterday (Mr. T. Miers in the chair), and present more than three-fourths of the shareholders, resolutions were unanimously passed to place the affairs of the mine under the Joint-Stock Companies Act, 1856, with limited liability. Capital 8000/-, in 2000 4/- shares, in lieu of the existing 4000 shares, upon which 22s. have been paid. This paid-up capital is divided thus—the numbers numbered 1 to 1000 are deemed paid-up 4/- = 4000/-, while those numbered 1001 to 2000 are credited the balance 400/-, upon which latter a call of 6s. per share was made. The greatest unanimity was evinced at the meeting, and from the recent reports it is expected the mine will very shortly pay profits. A board of directors was appointed in accordance with the Act, and also an auditor.

At Frank Mills Mine meeting, on Wednesday (Mr. Wm. Porter in the chair), the accounts showed—Balance last audit, 222. 12s. 11d.; mine cost for June, 407. 12s. 5d.; July, 399. 12s. 9d.; merchants' bills, interest, &c., 251. 3s. 5d.—1231. 14s. 10d.—Calls received, 818. 16s. 2d.; sold, 332. 5s.; leaving balance against adventurers, 132. 12s. 10d. Capt. J. P. Nicholls reported that he expected the next sampling to be 30 tons. The chief part of all necessary machinery and surface work was completed, which would lessen the monthly cost, and on reaching the 72 there was not the least doubt but that the mine will more than pay cost.

At Bedford Consols Mine meeting, on Tuesday (Mr. T. C. Wright in the chair), the accounts showed—Merchants' bills, 214. 17s. 7d.; mine cost, Dec. to June, 347. 2s. 4d.; legal expenses, 6s.; Mr. 104. 3s. 6d.—173. 3s. 2d.—Balance from last audit, 53. 18s. 1d.; calls received, 193. 1s. 10d.; leaving balance against adventurers, 231. 4s. 1d.—A call of 3s. per share was made. Mr. C. D. Butt was appointed secretary, and Capt. Joseph Hodge and Mr. Thomas Rosewarne superintending agents. Messrs. Bews, Rowlands, and Wright, were appointed the committee of management for the ensuing three months. A resolution was also passed that a banking account be opened with the Bank of London. Capts. J. Hodge and T. Rosewarne reported that several mining agents of great experience had visited the mine, and pronounced that it would be a great and lasting one.

At Wheal Langford meeting, on Tuesday (Mr. Broad in the chair), the accounts showed balance in favour of adventurers 13s. 2s. 9d. A call of 2s. per share was made. The proceedings are detailed in another column.

At the Cwmduylo Rock Mining Company meeting, on Thursday (Mr. Beckers in the chair), Mr. Manier said it was called with a view of stopping the proceedings in Chancery for winding-up their affairs: he observed that if the arrears of calls were paid and another call fully responded to, they would be in a position to pay off all the liabilities and obtain possession of the property, enabling them to dispose of it without a forced sale. The liabilities under any circumstances must be paid, and the Court of Chancery would compel the defaulters to contribute, and perhaps, in addition, 1000/- for law costs. Under these circumstances, Mr. Manier entreated them to unite, and not make bad matters worse. Mr. Manuel explained that the total amount of liabilities, including those disputed, was 17265. 3s. 4d., and the arrears of call, 626. 5d. He contended that by proper management the mine might be profitably worked. The Chairman, in answer to a question, said, although the committee of management had several offers to purchase, they were mere words. Mr. Manier reminded the meeting that the property was now out of the hands, and if sold by the official manager, it would be disposed of for any sum that might be bid for it. After a very lengthened discussion, a resolution was passed appointing Messrs. Manuel, Manier, and Beckers a committee, to wait upon the committee of management, with a view of endeavouring to arrange the affairs of the company without the intervention of the Court of Chancery. The proceedings, which were conducted throughout with good feeling, terminated with a cordial vote of thanks to the Chairman.

At the Duston Iron Ore Company general meeting, on Tuesday (Mr. T. Blighwood in the chair), the accounts showed a balance in favour of the company of 1028. 10s. 10d. The Chairman and Mr. Baker were re-elected directors, and Mr. E. Archbold auditor. The sum of 10s. 10d. was voted to the auditors for past services. The proceedings, which are fully reported in another column, terminated with a vote of thanks to the Chairman.

At Great Howes United Mines, the improvement is becoming important.

In December last, the value of the sold was 399. 16s. 5d.; in June last, 325. 1s. 4d.; in July, 607. 3s. 3d.; and for August, 655. 19s. 9d. The returns for June show an increase over Dec. of 128. 4s. 11d.; and the increase of August over June, 137. 18s. 5d. It is considered that the returns will continue to increase for a long period.

The Llywymalees Mine sampled 30 tons of silver-lead ore on Friday.

An additional 40-ft. wheel and other effective machinery have just been erected, and the underground prospects, with this increased power, places the probability beyond doubt that this mine will shortly rank amongst the best dividend-paying mines in Cardiganshire. It has recently been incorporated under the Joint-Stock Companies Act, 1856. About 14,000/- has been expended on the mine, represented by 1280 shares, and 256 new shares of 10/- each are about being issued.

At Rosewarne United, they are daily expecting a considerable improvement in the 4s. west. The western engine-shaft is nearly down to the 34 fm. level, when the lode will be intersected.

Great Wheal Alfred, which some years since ranked with the first in the county, has for some time been poor, and worked at a considerable loss, but latterly has been gradually improving, and is again likely to take a prominent position. The 100 is said to be yielding 6 to 8 tons of ore per fathom, the 170 and 148 are very promising, and the 180 yielding 3 to 4 tons per fm. Neither of these ends are so far in advance as the 153, and the one in the latter being in the elvan course, and under similar circumstances to which the former large deposits were found, great and well founded hopes of the future are entertained.

At Grampbler and St. Aubyn, Williams' shaft has been hoisted to the adit; also the winze from the 12 to the 24. They have got a fine stone of grey ore in the 12 end east; also a good branch of ore, 7 or 8 inches wide, in the 24 end east. The eastern winze below the 12, before the 24 end, is worth 30/- to 40/- per fm. This week, 46 tons of rich ore has been sold.

At Wheal Trevisaf, the 30 east is worth 1½ tons of ore per fm., and there are two pitches west set at 4s. 6d. and 5s. in 1. About 30 tons of ore will be ready for sampling by the end of this month.

At Wheal Enys, the sump at engine-shaft will be complete to the 40 under adit in the course of a few days, whilst that at Brougham's will shortly arrive at a similar parallel, when good results may be fairly anticipated.

Old Tolgus United engine will be at work in the coming week, when they will be in a position to develop the mine rapidly, with fair prospects of success. The lode being at the engine-shaft, it will be sunk in its course, proving it every where they go down. At present it is stated to be 2 to 3 ft. wide, with very fine stones of copper ore, and every indication of great improvement as they proceed.

At Wheal Bray, there is a fine pile of copper ore now at surface, waiting the completion of the crusher, and that will soon be done. The prospects of the mine are very cheery indeed.

At South Cudrilla, the lode in the 20 is large, and looking well. The lode in the 30 is producing good ore. The stopes are looking well.

At North Wheal Robert, it is expected that the sampling this month will be from 135 to 140 tons.

At East Garas, an important discovery is daily expected.

At West Rosewarne, the engine is about to be set to work. The adit is cleared for a considerable distance, and will soon be completed. As soon as the water is drained from the old workings, the operations will be of an interesting nature.

At Nether Heath, preparations are making to work the mine on a much larger scale than hitherto. The crushing-mill and stamps are nearly ready to go to work, and a new lodging-house, capable of accommodating 100 miners, will be completed next week, also stable and foreman's house. The committee resolved on Tuesday to erect a storehouse, office, and two more workmen's cottages, and also to immediately commence a level to cut a vein recently opened upon in the new grant. The mine continues good.

Wheal Friendship (St. Hilary) is looking very well, and improving. At Wheal Hender, the engine has been at work some days, and the shaft sinking below the adit on the course of the lode, from which returns are shortly expected. The south lode is stated to be of a very promising character.

Union Tin Mine is daily improving in value, and the prospects are very good. It is now looked upon as an early dividend mine.

From North Frances, we learn by a report received yesterday that there is a good lode in the winze sinking below the 42 fm. level, producing grey and yellow ore, worth 25/- per fm. The western shaft (Kales') will be completed to the 54 by the end of this month.

Capt. John Stevens, late principal resident agent at Great Wheal Alfred, has been appointed to the West Polberro Mine.

Wheat Buller, although quoted 260/- in London, has been in demand in Cornwall, in the neighbourhood of the mine, to 285/-.

Porkellus United has of late much improved, and shares are in good demand, at 9½ to 10/-.

During the week there has been a good demand for Great Wheal Alfred shares, at 4½ to 4¾. Should be improved prospects of the mine continue, the price of shares will considerably advance.

The Iberian Mining Company sold on Wednesday 69 tons of lead ore (Lead Iberiana), at 16s. 6d. per ton. The assay by Mr. Mitchell gave 30 per cent. for lead, and 16 ozs. of silver to the ton.

The directors of the Anglo-Californian Gold Mining Company have issued a circular to the shareholders, stating the proposed capital of the new company to be \$2,000,000, in shares of 1/- each, with power to increase the capital to \$6,000,000; of this number, 16,000 shares are to be set apart for the directors, to indemnify them against all the liabilities of the Anglo-Californian Gold Mining Company, and the expense of the formation of the new association, the remaining 16,000 shares to be offered to the public, priority being given to the old shareholders. The directors state that 65,000/- has been expended, the known liabilities are 12,000/-, and a further sum of 12,000/- is necessary, which would increase the capital to 90,000/-—profits would have to be divided on that amount; but in the new company the shares will be distributed only over a capital of \$2,000,000. The company will have a more favourable opportunity of acquiring leases, purchasing quartz, &c., and 'are more informed by Mr. Frankland, their present superintendent, that the machinery is in perfect order, and there is no difficulty in getting it into full working order.'

At the Clarendon Consolidated Copper Mining Company of Jamaica meeting, on Tuesday (Mr. J. W. Carter in the chair), satisfactory reports were read from the directors in London and managers in Jamaica. The available assets in hand were 11,500/. The proceedings are very fully detailed in another column.

The whole of the machinery for Dr. Collyer's Belon Mine, New Granada, manufactured by Messrs. Ransomes and Sims, of Ipswich, was dispatched on the 12th inst. by the *Santiago*. A newly-constructed raft, suggested by Dr. Collyer, has also been sent out, drawing only 1 ft. of water, by which means they will be enabled to land the machinery with comparative facility.

The Mining and Metallurgical Company of the Asturias will hold their meeting to-day at Paris. The English shareholders have dispatched their directors, Messrs. Kenneth Mackenzie and Josiah Wilkinson, to protect their interests. Nearly the whole of them have given these gentlemen proxies, in order to decide what steps shall be taken—whether the property is to remain under the superintendence of the present gerant or wound-up. Count de Caussens, Viscount Bedeville, and a number of the original shareholders, it is anticipated, will attend, so that some final and definite decision may be arrived at.

The Obernhof Mining Company have called a meeting of the shareholders to be held in Obernau, Nassau, on Sept. 6.

The Garnett and Mosley Gold Mining Company have convened an ordinary general meeting for Thursday.

In Foreign Mines, the market has been quiet throughout the week, and the only transaction effected yesterday was in National Brazilian, at 3½ to 4. On Monday, St. John del Rey changed hands at 31, and on Thursday at 31½. In other securities of this description, Fortuna changed hands at 1½; Clarendon of Jamaica, 3½ prem.; United Mexican, 3½ 4; Cobre, 51 to 50; Linares, 7½; Lusitanian, 1½ to 1½; Mariquita, ½.

In the Gold Mining Share Market, the prices are merely nominal, the only transactions effected being in Chancellorville and Fort Bowen, both of which have been weaker; the former were dealt in yesterday at 9s., and the latter, 9s. 3s.

At the Kapunda Mines (South Australia), everything is progressing most satisfactorily. The mine is in fork to the 50, and active preparations are now being made to sink the two principal shafts to the 70 fm. level. The pitches are all looking well. The sampling for April has just been completed, when about 340 tons of gold ore were weighed off. The smelting works are also in full operation, and a refining furnace is in course of erection. We understand it is the intention of the manager that all the produce of the mines shall in future leave in the form of copper. Since October last, there have been exported from the mine 724 tons of ore, containing 13 tons of copper, and 225 tons of regulus, containing 135 tons of copper; 216 tons of ore, containing 62 tons of copper, are now about to be shipped to England, via Melbourne, and on May 1 last 100 tons of regulus, containing 64 tons of copper, were ready, either for shipment or for being reduced to copper. These quantities, with about 80 tons of ore at the smelting works, containing 112 tons of copper, are the produce of one year's work, and exhibit a considerable increase upon the produce of the previous year.

From New South Wales, we learn that great complaint is made in Newcastle at the conduct of the Australian Agricultural Company with regard to the local coal trade. It appears that the production of coal has now almost wholly devolved upon two companies—the Australian Agricultural Company and the Coal and Copper Company. The partial and short-sighted conduct, as it is considered in the colony, of the former company consists in giving certain undue preference, which, although for the moment may increase their profits, must ultimately damage not only the interests of the company practising it, but those of the district in general. A vessel entered at the Australian Agricultural Company's office for 750 tons of coal was detained beyond its turn, in consequence of the regulation of the company in trading their chartered vessels for their retail trade, in Sydney and other ports, to the exclusion of all others, in order, it would seem, that through their vessels having no detention, a shilling or two per ton might be saved in the freight. It is argued that this can be no equivalent to the company compared with the opening out of a new and extensive market for coal—the vessel intended to be waiting for its cargo being for the purpose of conveying their coals to China.

From Mexico, we learn that immense placers of pure gold have been discovered in the southern portion of the State of Guerrero. Attention is called to the sulphur beds which exist at and around the volcano of Popocatepetl, and which are said to be inexhaustible. It is said that Mexican energy could be stirred up to work these mines, a much better article of sulphur could be obtained, at least cost, than from Italy.

From Drontheim, we learn that the young Prince of Orange had sailed from that port in the steamer *Merapi* for Reikjavik, capital of Iceland, with the intention of making mineralogical searches in the neighbourhood.

The Madrid Gas Company, with a view to meeting the claims of its creditors, advertises for sale its manufactory, warehouses, privileges, and other assets. Tenders are to be received on September 15, the minimum reserved price being 15,000,000 reals.

The Electric Power, Light, and Colour Company have obtained their certificate of incorporation under the new Limited Liability Act.

The Acadian Charcoal Iron Company is now completely registered under the Limited Liability Act, and the share certificates are ready for delivery.

In Miscellaneous Shares, the market has been inactive. On Monday, Ottoman Bank and Bank of Egypt shares closed at ½ to ½ prem.; National Discount, 1½ to 1½ prem. Royal British Bank shares were firmer, at 35 to 37, ex div. The Chartered Bank of India, Australia, and China shares have been more enquired for.

On Tuesday, Ottoman Bank shares improved to ½ to ½ prem.; Western Bank of Switzerland were marked ½ div. to par; Eastern Bank (Kailash), ½ to ½ prem.; Western Railway of Austria, ½ to ½ prem.; Ceylon Railway, ½ to ½ prem.; Calcutta and South-Eastern Railway, ½ to ½ prem.; Copiapo Extension, ½ to ½ prem.; European and Indian Junction Telegraph Company, ½ div. to ½ prem.; Hungarian Land Company, par to ½ prem. On Wednesday, prices remained without alteration worthy of notice. On Thursday, Ottoman Bank shares fell to par to ½ prem., owing to statements that the Greek party were endeavouring to stave off an opposition project. Yesterday, shares changed hands in Berlin Water-Works at 5½ to 6½; Canada Government 6 per cent., 11½ to 12½; Crystal Palace, 2 to 2½; London Omnibus Company, 4½; Mexican and South American, 3½ to 3½; National Discount, 6½; Ditto, New, 2½; North of Europe Steam, 13½; Oriental Gas, 1½; Ditto, New, shares, ½ prem.; Royal Mail Steam, 71 to 71½; South Australian Land, 36 to 35½. Joint-Stock Banks were more enquired after. Bank of Egypt shares were dealt in at 12½%; Bank of London, 70; British North America, 68; City, 73 to 72; English, Scottish, and Australian Chartered, 17½; London Chartered Bank of Australia, New, 16½; London and County, 31½ to 32½; Oriental Bank Corporation, 40; Ottoman Bank, 10 to 12½; Union of Australia, 69½ to 68½; Unity Mutual, 45½. The nominal quotation of Ruhrtor Coal is par to ½ prem.; Adelphi Iron, 4 div. to 4½ prem.; London Cork Company, par to ½ prem.; West Ham Distillery, par to ½ prem.

At the Cambrian Steam Packet Company (Limited) annual meeting, the accounts showed a balance in favour of the company of 2067. 18s. 2d. With a view to carrying out as economical a plan of management as possible, the directors appointed Mr. E. W. Crecock the managing director of the company, and proposed that the clause compelling the directors to meet not less than once a month be varied to one in three months. It was resolved that hereafter no shareholder being in arrear for calls or deposits should be entitled to speak or vote at any meeting, or have any control over the company; that unless at the time of their election any other rate be determined upon, the fees to the directors should be two guineas each for every attendance. Messrs. G. A. Arney and John Vernon were elected directors, and Messrs. E. J. F. Swayne and W. Batyke auditors for the ensuing year, with a salary of 10/- for each adit they might be called upon to make. Thanks were voted to Mr. J. Roberts, lessee of Aberystwyth Harbour, for the hearty support he had given the company, and to the Chairman for his conduct in the chair, and the meeting separated.

COAL IN THE BALTIC.—Major de Bonningsen-Foerder, one of the most celebrated geologists of Berlin, has just made a discovery which is of the highest importance for the province of Prussia. Guided by certain geological indications, Major Bonningsen has found, near the shores of the Baltic, a stratum of very rich coal, and he is of opinion that the bed extends throughout all the province. The Russian Government, whose attention has been awakened by this discovery, will soon commence similar researches on its territory.

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THE PROGRESS OF MINING IN 1856.
BEING THE TWELFTH ANNUAL REVIEW.

By J. Y. WATSON, F.G.S., Author of the *Compendium of British Mining* (published in 1843), *Gleanings among Mines and Miners*, &c.

A FEW COPIES OF THE REVIEW OF 1855, containing Statistics of the Metal Trade, the Dividends and Per centage Paid by British and Foreign Mining Companies, and the State and Prospects of upwards of 200 Mines. Also, a FEW COPIES OF THE REVIEW OF 1852, 1853, and 1854, MAY BE HAD ON APPLICATION AT MESSRS. WATSON AND CUELL'S MINING OFFICES, 1, ST. MICHAEL'S-ALLEY, CORNHILL, LONDON.

Also, STATISTICS OF THE MINING INTEREST. By W. H. CUELL.

WATSON AND CUELL, MINING AGENTS (Established nearly 20 years), are always in a position to BUY AND SELL SHARES IN BRITISH MINES, and OFFER THEIR ADVICE in all matters relating to MINING. 1, St. Michael's-alleys, Cornhill, London.

Notices to Correspondents.

MANUFACTURE OF ALUMINIUM.—Sir: In the *Mining Journal* of August 9, copied from the *Mechanics' Magazine*, signed Dr. J. Losity, we are told that this new mineral is to be found in large quantities in Norway. It states in the paragraph in question,—"A shaft of about 30 ft. has been sunk through a compact mass of ceramite, which will yield hundreds of tons of this valuable metal. On the surface the ore is of a light colour, but as descending lower it becomes darker. A Mr. Taylor is at the head of this Norwegian California." I believe there must be some mistake here; I have searched with great care several standard works on mineralogy, and do not find in them any mention of a metal or mineral denominated ceramite. Cerite and cerium have been discovered in the copper mine of Bastnes, near Riddarbytan, in Sweden; but, from the analyses of Hisinger, Vauquelin, and Berzelius, it would appear these contain no alumina. Wollaston found silicate of cerium occurring with emerald in magnesian carbonate of lime at Santa Fe de Bogota, in Peru. At a meeting of the Geological Society, held in February last, Mr. John Taylor, who had then lately returned from Arksfjord, in Greenland, observed abundance of cerylite was found there, which might be available for the manufacture of aluminium. For a long period Arksfjord was the only known locality of this mineral. I am, therefore, inclined to believe a lode of the same description as that in Greenland has been discovered in Norway, and the mistake has arisen from a clerical error in the words. Probably some of the correspondents of the *Mining Journal* will be enabled to enlighten your readers on so interesting and such an important subject.—A STUDENT: Cambridge, Aug. 20.

NEW JOINT-STOCK COMPANIES ACT, 1856.—CAUTION TO SHAREHOLDERS.—Sir: It may not be generally known that, under the provisions of this Act, companies may be registered either "limited" or "unlimited"; and an attempt was made last week, at the meetings of three companies, to leave the matter in the hands of the directors as to the course to be pursued. Fortunately, a gentleman of the legal profession was in attendance, and pointed out the danger of entrusting the decision to the board; and resolutions were unanimously passed to make the liability of the companies limited. Had this course been adopted, the shareholders would have been in a worse position than at the present time; it is obvious, therefore, that proprietors bringing themselves under the operation of the Act referred to should take care that it is with "limited" liability.—R. W. B.: *Lothbury*, Aug. 22.

UNSUCCESSFUL MINING.—LORD'S AGENTS.—Sir: At the present period no interest appears to be so much depressed as that of mining. One crying evil among the many is occasioned by the lord's themselves, or their agents—that such foolish clauses are inserted so frequently in leases, that adventurers must put up an engine within a given short space of time, and that, too, not less than a 50 or 60-inch cylinder. Now, I know, from 20 years' experience, that such compulsion has been ruinous in new sets, where but little has been seen of the lodes below the adit level. More ground should be laid open to discover the intersection and junction of lodes, such as caunter lodes failing in with standard and champion lodes; when such events happen to be discovered, particularly where these intersections take place in strata the most congenial for a deposit of ore, the result is a prize. A little more time should be given to the adventurers to make such discoveries as I have pointed out, or see whether such intersections do exist, before heavy sums are expended in machinery, &c. I believe that half the misery occasioned and losses sustained in mining is by this means. Many of the lord's agents are amongst the most tyrannical persons in existence, and capitalists are frequently deterred from starting mines by the inattention and incivility of these gentlemen stewards. I trust, Sir, you will use your pen to alleviate the poor miner, as there is no better means of exposing abuses than through your Journal.—A CONSTANT READER: *Redruth*, Aug. 18.

THE MINERS' SMELTING ASSOCIATION.—Sir: In answer to the numerous applications and enquiries respecting the progress in this affair, I beg to state, through the medium of your Journal, that the progress is both rapid and satisfactory. All enquiries, &c., to be addressed, as before, to "Young Smelter," care of the Editor of the *Mining Journal*.—YOUNG SMELTER: Aug. 22.

CHANCELLORVILLE GOLD MINING COMPANY.—Sir: Mr. Harris states, that "the gold and silver from the ore will be extracted by a process that can only be successfully carried out where fuel is cheap, and not by the expensive and uncertain modes adopted in some other mines." I presume Mr. Harris alludes here to the uncertain and costly modes of extraction adopted in Wales, as the remark cannot apply to our established gold mines. I should like to know where, in England, the successful process has been carried out in practice? I would recommend the shareholders to limit the cost for these experimental trials to a small amount, and obtain securities from the parties who undertake such experiments, as a guarantee for their competency, and faithfully record the results.—EVAN HOPKINS: Aug. 18.

CHANCELLORVILLE GOLD COMPANY.—Sir: In reply to your correspondent, Mr. Price, I beg leave to inform him that I have received most trustworthy and elaborate reports from Virginia, and especially from the Orange County. The average product of the auriferous bands have been found to vary from \$3 to \$12 in value, when reduced on the large scale. I have examined some samples from the Grassy Estate, and according to my judgment in such matters, I do not believe that such stuff can produce more than the above average product. A prudent company would first reduce about 50 or 100 tons of this stuff, and obtain the *total product*, before incurring much expense in reduction works, and then decide on the best practical method to extract the gold at a cost. We can obtain rich samples and some rich specimens from the most worthless gold mines; but practical and prudent men of business should be guarded in these matters, after the *exposures* that have been made during the last few years. My object in making these observations is to avoid a repetition of these deceptive and ill-digested schemes which have injured so many, and brought disgrace on mining enterprise, and make us the laughing stock of other nations.—EVAN HOPKINS: *Thurloe-square*, Aug. 18.

THE REDUCTION OF AURIFEROUS ORES, &c.—Sir: I beg leave to correct some errors in Mr. Clement's article, in your last Journal. The gold mines of Marmato are not in Venezuela; they are on the bank of the Rio Caucá, in the province of Popayán. They have been worked by means of levels, driven to the extent of about 250 fms., and upwards, in the side of a high porphyritic rock, and not by shafts. This establishment was carried on by most efficient staff of officers in the most systematic manner. My duties were principally confined at the commencement to the engineering department. The mills, arrastres, lavados, and other reduction works, were erected under my direction, and made capable to reduce about 2500 tons of pyrites per month in 1856, which I considered at that time quite sufficient for the mines. These mines may be compared to the Wicklow Sulphur Mines, and the ores extracted in wagons on rails. The total cost of reducing the pyrites and extracting the gold therefrom at that establishment is about 8s. 6d. per ton. The metal is a compound of 2 of gold and 1 of silver, commonly called electrum. My general report on this locality was published in 1853. I make these observations to prevent one establishment being confounded with another by your correspondent.—EVAN HOPKINS: *Thurloe-square*, Aug. 18.—P.S. SOLUTION PROCESS: Whilst at Melbourne, in establishing the melting and assaying offices for the Port Phillip Company, the gold in the first sample of tin ore I received from the Ovens was dissolved out of that ore, and converted into a chloride of gold, leaving the oxide of tin almost clean. This was done by our assayer, Mr. Birkmyre, without any difficulty, but I found such a process too expensive to be recommended. The gold was easily separated, with economy and dispatch, by means of simple but well-arranged machinery. All that was wanted was to get plenty of the auriferous oxide of tin at a cheap rate.—E. H.

JNT-STOCK COMPANIES ACT (19 AND 20 VICT., c. 47).—It is absolutely necessary that all companies should come under the operation of this Act, with the exception of those within the jurisdiction of the Stannaries, or working under a private Act of Parliament or a Royal Charter. Unless it is stated in the memorandum of association that the liability is to be limited, and the title of the company is altered by the addition of the word "limited," the liability of the shareholders will remain "unlimited," as at present.

CAPT. JEHU HITCHINS, AND MR. NICHOLAS ENNOR.—Sir: Your correspondent, N. Ennor, expresses his infinite surprise at Wheal Emma adventurers having appointed me their superintendent. I ask would not his astonishment have been greater had he obtained that situation instead of myself? He also states that he knows something of me, of which fact there is not the least doubt, for I am quite sure he has not forgotten my report of the Delabole Slate Quarries, and his loss of the management; his ill-success had—the which, together with his envy, at my position are, I believe, the incentives to his long-expected attack on myself and the Wheal Emma, in your Journal of last week. His latter remarks are on the same strain, which I leave to their own impotence, and thus dismiss the subject, which I should not at all have noticed, and certainly not have deemed worth my while to reply to, except at the command of a few of my numerous influential and staunch friends, amongst whom I am proud to include the principal shareholders of Wheal Emma, whose kind support my general conduct has secured, and whose confidence has excited N. Ennor's envy, by placing me above the necessity of seeking notoriety through the public press.—JEHU HITCHINS: *London*, Aug. 21.

MR. NICHOLAS ENNOR, AND WHEAL EMMA.—Sir: Our old friend, "the invincible Mr. Nicholas," rather jumps at his conclusions; and if he would only make a few enquiries before committing himself in print, the ability which he undoubtedly possesses would command more respect and attention. It is, however, only necessary to think lightly of "the Ennorian theory of lodes" to be at once condemned, as Capt. John Hitchins was in Mr. Ennor's letter last week, thus—"Well knowing the person (?) I felt assured it was not the right man in the right place." It is to be hoped that Capt. Hitchins is not quite annihilated, and that he may yet survive. Mr. Ennor goes on—"On my return from Cornwall, I again visited the mine, when I found Capt. Sprague had left, Mr. Robin from home on business, and the mine without a captain. Mr. Hitchins, I was informed, was in town, instead of being at his post," &c.—making it appear, throughout his letter of last week, that Capt. Sprague had been discharged, Capt. Hitchins, an incompetent person (according to Mr. Ennor), put into his place, and already neglecting and being absent from his duty. Now, Sir, what are the facts?—That Capt. Sprague, as I am informed, tendered his resignation because he was asked some very proper questions, which resignation, to his surprise, was accepted. Capt. Goldsworthy was appointed in his place, and Capt. John Hitchins holds the same appointment which he has held since the meeting of March 5, as inspecting agent, both in conjunction with Capt. Sprague and the present captain, his position at the mine being the same when Mr. Ennor visited it a few weeks since as when he honoured it with his presence on a former occasion, unless that was previous to March last. The name and qualifications of Capt. Hitchins are too well known to require any remark, but I thus notice Mr. Ennor's letter, which was evidently written without due consideration, because there are many buyers and sellers in the West of England who place a good deal of confidence in his judgment, and what falls from him might do mischief in some quarters, if left unexplained.—R. G.: *Bath*, Aug. 20.

IRON BRICKS, PIPES, AND TILES.—Sir: May I beg once more to refer your readers to the correspondence you so kindly inserted in your Journal in July, 1855, relative to the manufacture of clay slag, in combination with other businesses using steam-power, clearly showing the capability of making one fire answer for several manufactures, and thereby forming a brick pipe, and tile factory, as recommended so forcibly by Mr. Heart when applied to the common brick business, and greatly diminishing the cost of machinery in competition with hand labour (as must evidently appear to all who have read Mr. Chamberlain's paper, and the discussion thereon, which appeared in the *Journal of the Society of Arts* of June 6 and 13 last). A perfect and finished article in slag, of any form, with only one fire, is melted and moulded direct from the furnace, into a perfectly finished article, in less than two minutes; and as Mr. Bessemer's improvements in iron manufacture are calculated to dispense with the paddling furnace, I would suggest the use of them in the manufacture of iron and clay slag, and thereby retain the present use of the waste heat for generating steam for rolling iron, &c.—W. H. CUELL: *Bisworth*, Aug. 20.

ADVERTISING SHAREHOLDERS.—QUEEN OF DART.—Sir: I am truly glad to see some parties are taking up cudgels to give the advertising shareholders a good dressing. Seeing the Queen of Dart Mine advertised at extraordinarily low prices in two or three places in your Journal, I applied to secure them; from one I received no answer, from another a pauper and evasive one, and from another "sold," but can procure you a few at an advance. I now learn the value of these shares are improved, and therefore conclude there was an attempt made to "bear" the property.—J. JONES: *Birmingham*, Aug. 18.

MINERAL LODES.—Sir: Since your intelligent correspondent, Mr. N. Ennor, after a careful investigation, has arrived at the conclusion that lodes, like fruit trees, show their choicer productions on their upper parts, I ask whether, during his researches, he has not been occasionally led to conclude that some of them were of the potatoe kind, which shows its largest and most valuable deposit at the bottom?—MARTIN BOUNDY: *Wicklow*, Aug. 20.

ABANDONMENT OF MINES.—THE TRETOIL.—Sir: I am decidedly of opinion that the mining interest of Cornwall suffers greatly from unnecessary panic, leading to the abandonment of many valuable mines. With your permission, and for the information of the readers of your valuable Journal, I will state a case within my own experience. The Tretoil Tin and Copper Mine was, in 1847, abandoned through panic. This mine was re-opened about 17 months ago, and in this comparative short space of time tin enough has been raised and sold to repay the shareholders £s. of the £s. subscribed on 4000 shares, to pay for plant and machinery above 1800£., and at this moment there is little short of 1000£. worth of tinstiff at surface, dressed and undressed.—AN ENGINEER: *Goscar-street*, Aug. 19.

CLARENDON CONSOLIDATED MINING COMPANY OF JAMAICA.—"H." (Southampton).—The company must come under the operation of the Joint-Stock Companies Act, 1856; and at the forthcoming special general meeting it will be merely a question for the proprietors whether they will be limited or unlimited.

MOUNT CARBON MINING COMPANY.—Sir: A friend induced me to purchase shares at a premium of 1/2 in this association; at the same time, I was informed there was a capital of \$0,000, subscribed. I knew out of this the vendors had been paid; subsequently I found that, although the property was such as it had been represented to be, only about 50,000£. had been sent to the agent to work the mines, erect the necessary buildings, purchase barges, &c. I find, at the same time, although the offices were in London, we had one director in the west of England, and another in Glasgow, and that whenever they had to attend boards the shareholders were saddled with their expenses, which amounted to a heavy item. For a considerable period we have not heard what the directors propose to do, or whether the property has been seized by the creditors in America. From whence can we receive any information?—PREMIUM: *Cornhill*, Aug. 21.—[The company is not dissolved; on enquiring at the offices, Cannon House, probably the necessary explanations can be afforded.—ED. M. J.]

IRON MANUFACTURE.—"A Subscriber" should address a letter to Messrs. Bessemer and Cox, Boxer House, St. Pancras, who will state whether he can receive their process in operation.

TANWORTH MINE.—Sir: Some years since we were told we had cut the lode, and that dividends would be shortly paid; since that period the shareholders have exercised considerable patience, and how have they been rewarded? by a succession of calls. Probably, through the medium of the *Mining Journal*, the secretary, or some of the committee, will tell us when these are to cease.—AN ORIGINAL SHAREHOLDER: *Tatton*, Aug. 21.

PRINCIPLE OF RATING COAL MINES.—"Unus" (Dudley).—If the owner of the coal mines is also the occupier of them, he is ratable to the poor at the sum for which his mine would let, subject to outgoings, so that no allowance should be made for money expended in rendering the mines productive. If a lessor or other person, not being the owner, be the occupier of a coal mine, such lessee, &c., is ratable for the amount of royalty or rent which he pays, no allowance being made to him for money expended in rendering the mine productive. The above are the *true* legal principles upon which the rate should be levied; if, however, it appears that any other principle of rating, not manifestly unequal or unfair, has been adopted, the Court of Queen's Bench, on appeal, will not quash such rate.

ANGLO-AUSTRALIAN GOLD MINING COMPANY.—We are requested by the secretary to state that, if "T. P." (Wimborne) is a shareholder, he may obtain all the information he requires at the offices, Essex-street, Strand.

THE MINERS' SMELTING ASSOCIATION.—Sir: I hear it rumoured that, when the shares of this company are issued, the old smelters will combine to purchase up the majority of them, and thereby neutralise the power of the company, and so gain their point in that way. I am of opinion that that may be safely guarded against, especially as the miners and those interested in mines are sufficiently powerful to grasp the thing entire, independent of the public. Therefore, such a rumour may only amount to "wind," still it must be carefully watched. Of course, we hear many things in this locality about it.—A LOOKER-ON: *Truro*, Aug. 21.

"SPECULATOR." (Aberystwith).—The company could not be registered with limited liability under its present title (— Company, Limited by Act of Parliament), as it is evident, with such a title, "limited" is not the last word in the name of the company. All debts contracted before the incorporation of the company could, undoubtedly, be recovered from the promoters, in the event of the company refusing to recognise them. On the same principle, parties applying for shares have nothing to fear, as the issue of certificates of shares would be illegal under the Registrar's Certificate of Incorporation had been obtained; the applicants could not, therefore, be shareholders until the company be incorporated, when their liability would really be limited; provided, of course, that in the Memorandum of Association it is stated that the company is to be a limited company, and the title is altered accordingly, so as to read "— Company, Limited."

STATE OF THE MINING DISTRICTS.—We are compelled to postpone our notice of the report of the Commission on the Operation of the Act 5 and 6 Vict., c. 99, and on the State of the Population in the Mining Districts.

MINING INSPECTION.—In Sweden and Norway, whenever a mine, on the complaint of a workman, is reported dangerous, the bergmeister, or, in his absence, the geschwörner, can be called upon to inspect it. They have to see whether the mine is safe or not, and to decide how far well grounded, or based upon truth, the complaint may be. Their decision is final, and beyond this point they cannot interfere, either in the management or working of the mine. These officials are required periodically to send reports to the Government of the working of all mines, whether they belong to the state or private individuals. Their supervision has hitherto neither been found onerous nor vexatious to the proprietors. In Saxony, those aspiring to the higher branches of mining and smelting must undergo a rigorous examination; inferior situations are filled by those who are deemed competent persons for the posts they undertake, and these in general are pupiles of the Mining Academy.

WEST CERNINIS MINING COMPANY.—A full report of the meeting was given at the period the shareholders were last convened in London—in July. At that time it was decided that it would be advantageous for all parties to obtain the adjoining seat of Wheal Regent; this was unanimously agreed to. The offices are St. George's Chambers, High-street, Birmingham. The purser is Mr. Thomas Lewis.

CWMDYLL ROCK COMPANY.—Sir: I attended the meeting of the shareholders on Thursday evening; and I am sure, if the interests of all are consulted, they will one and all unite to carry out the object proposed. The strong arm of law, through the Court of Chancery, will compel payment of the debts; and surely it will be better to do so, without adding cent, per cent, to them. At the same time, if every one does not come forward, they may rely upon the law proceedings going on. I would suggest that a committee be appointed without delay to ascertain the feeling of the shareholders, and obtain a pledge from each that they will contribute their proportion.—A. G.: *Old Broad-street*, Aug. 22.

SOCIETE PARISIENNE.—On information which we find erroneous, we answered a notice of "D. A." (of Paris), in our last Journal, and regret having been so far imposed upon as to suggest an imputation against the parties in question.

MINE WATER FOR ENGINE-BOILERS.—A Pennsylvania correspondent complains that water used in that coal district is so full of corrosive acids, that in a short time it not only destroys the boilers, but likewise causes a considerable deal of labour to keep them in order. Pure spring water cannot be obtained near the collieries adequate even for purposes the least extensive. A drink of pure water is scarcely attainable, and all kinds are very limited, except such as are got from the mines. When good water is obtained in other places, it costs some thousand dollars yearly, and this is economical compared to the destruction of the boilers by that received from the mine. In order to show the corrosion of mine water, bars of iron several inches in thickness have been eaten through in a few months. It has lately been discovered that this can be purified: Prof. A. Maingay has patented a process for this purpose, and has erected an apparatus at Audenried, on the mines of Messrs. J. B. Moore, and others, near Jeaville, which is now in operation. His mode of refining the water is on scientific principles: chemical agents are made use of as disinfectants, but in such a manner that no difficulty can be experienced by any one, however unskilled, in their use, and that, too, at a small cost. The expense of erecting the apparatus varies from \$25 to \$150, according to size, and the quantity of water required for steam; and from \$50 to \$100 annually will be sufficient to keep it in working order. As the process is patented, the methods employed are not yet given to the public.

REDUCTION OF POOR MUNDICY ORE.—Dr. Neilsen, of Hamburg, stated some time since that the patent process was in practical working in Norway, but, by an omission, he did not denote the mines where it was used, nor the name of the patentee.

WHEAL EMMA (BUCKFASTLEIGH).—Sir: In referring to the two letters in your last Journal, I would merely beg to enquire, in answer to the vague assertions "of there being a splendid lode in the bottom of the shaft," and "of the mine looking as well as they can desire," how it is that no one connected with this mine venture to report on its present position and prospects, and attach his name thereto, as is the practice with all other mines? This was done when it first appeared in the market. Why has this been discontinued? Also, what *value* is this "splendid lode in the bottom of the shaft?" How many tons of ore per fathom does it contain? And what *quantity* of ore is being raised or discovered? Mr. N. Ennor's letter is equally unsatisfactory. He states "there is a fine lode in the western adit, and also in the shaft and winze," but he does not give us the least idea as to the *value* of these lodes, or an estimate of the *quantity* of ore they contain. It is well known that lodes are constantly discovered "very large and promising," but are without ore to value. The simple question, therefore, respecting this mine is, What *value* are the lodes, and what *quantity* of ore is being raised and discovered to justify a market price of from \$0,000, to \$6,000, for a mine without machinery, and selling no ore? Surely, something beyond a "splendid lode in the bottom of the shaft" is required to warrant such a price. Mr. Ennor adds "that he does not yet despair of this mine, if it be properly conducted." If there are "splendid lodes," and plenty of ore in them, why "despair" at all?—Q. S.: Aug. 20.

Mr. N. Ennor's paper on the Interior Heat of the Earth, and Capt. John Spargo on the Great Phoenix District, shall appear in our next Journal.

RED DRAGON AND GREAT COWARNE MINES.—The former, which has proved a perfect failure, has been altogether stopped for some months. In the latter there has been recently made three calls of 2s. each, which have been only responded to by a few, so that the adventure may be considered defunct. Both properties are adjoining, and are announced for sale in the ensuing month. These two mines are further proof of the unprofitable working of gold mining in this country.

THE MINING JOURNAL
Railway and Commercial Gazette.

LONDON, AUGUST 23, 1856.

The financial position of the country is a subject of general interest. It is no class matter, but appertains closely to every class. High and low, rich and poor, are identified with it, while every branch of industry experiences its effect. We cannot go into details in our Journal, but we draw attention briefly to a statistical abstract, which has just been published for the United Kingdom, for the last 15 years—from 1841 to 1855, and its perusal will prove interesting to all.

We find by this document that the exports, during the year 1855, of materials connected with mining amounted in value to 20,332,191. The items of this sum consist of 2,113,177. for goods of brass and copper manufacture, 2,211,215. for machinery, 9,472,886. for iron and steel, 1,135,090. for tin-plates, 2,960,391. for hardware and cutlery, and 2,439,432. for coals. The value of goods of earthenware manufacture which were exported during the year was 1,019,609. and this may be considered as associated with mines, but is not included in our total sum. The coinage during the year amounted to 9,245,264

350,000£ from its proprietary. All this amount of money, moreover, has been abstracted from the floating capital of the country, whereas whatever is invested in British mining enterprise remains in the country, passing from hand to hand, and doing its proportion of work for national prosperity.

Eight navigation companies have required a collective capital of about 4,820,400£, or 1,000,000£ more than the whole of the 350 mines, and yet we find that the best dividend is 10 per cent., and one, the Australian Royal Mail, has paid 10£ on 425,000£ absorbed. We allude, in addition, to the African Steam, General Iron Screw Collier, General Screw Steam, General Steam, Peninsular and Oriental, Royal Mail, and the North of Europe. Fourteen gas companies have taken 3,887,625£, or 100,000£ more than the 350 mines; and here we again find that the best dividend has been 10 per cent. Space will not permit us to go more into detail, but next week we will recur to the subject, and give statistics of other branches of commercial enterprise, to show that mining, when dispassionately considered, is as legitimate and safe as any other channel of beneficial investment; that the average general results keep pace with other matters, and, in individual instances, exceed everything in a most extraordinary manner.

The immense advantage which must undoubtedly accrue to all who are desirous of investing their surplus capital in commercial or industrial enterprise, by the introduction of the system of limiting the liability of shareholders in public companies, would alone induce us to do our utmost to cause the provisions of the "Joint Stock Companies Act, 1856," to be universally understood; and the course which has, in some quarters, been adopted, evidently with a view of rendering the measure as unpopular as possible, can but increase our desire to point out to our readers the benefit to be derived by its adoption. It is stated by those opposed to the Act, that the object sought by the law was the encouraging of speculation by the offer of an unlimited chance of gain with but a limited risk of loss; and for the sake of those who are always too easily duped by the designing concoctors of worthless schemes, we could but wish that such was the fact; we will, however, attempt to prove that there is equal security to the creditor under the new law, and under that by which public and private partnerships have hitherto been governed.

With reference to the memorandum of association, it is provided that, amongst other things, it shall contain a statement of the amount of nominal capital of the proposed company; and as the Act does not make it imperative that any portion of the capital shall be paid up previous to registration, it is argued that it is as easy and as lawful to fix such nominal capital at a million as at ten thousand pounds, and the larger the sum the more imposing would be the appearance of the company in prospectuses and advertisements, and the more readily would it obtain credit and confidence. Thus, it is said, a company may announce a nominal capital of 100,000£, and, from the fact that only seven partners are bound to subscribe to the memorandum of association, and that each partner need only hold one share in the undertaking, have only 7£ subscribed, and consequently have its liability limited to 7£. Now, we will for a moment assume a company to have been incorporated under these exceptional and extraordinary circumstances, and enquire what the result would be—whether the company would be enabled to contract any ruinous amount of debts from the mere fact that its nominal capital was fixed at 100,000£? or, whether creditors would be inclined to operate to greater extent, and would, therefore, be greater losers than in the case of any other trader commencing business with a capital of 7£?

The first step which would be taken by a merchant, when asked for credit, would most undoubtedly be to enquire into the solvency of the trader, whether an individual or a company asking it; and although in the case of a private trader there might be some difficulty in ascertaining this fact, with a company under the new Act, there could be none; for it is expressly provided by the Act that every company registered under it shall cause a register of shareholders to be kept, which register must contain the names, addresses, and occupations, if any, of the shareholders in the company, and the shares held by each of them, distinguishing each share by its number, the amount paid upon the shares of each shareholder, the date at which the name of any person was entered in the register as a shareholder, and the date at which any person ceased to be a shareholder in respect of any share. Then, the register of shareholders must be kept at the registered office of the company, and not less than two hours per day, during business hours, must be appointed for inspection; any shareholder must be allowed to inspect it gratis, and any other person not being a shareholder, upon payment of one shilling; so that upon payment of that small sum the merchant of whom credit is asked is enabled, at least, to ascertain how much of the nominal capital has been paid up. If he discovered that 7£ only had been paid, although the nominal capital was 100,000£, he would probably refuse to give credit; but, even supposing he did credit such company to the extent of the whole of the nominal capital, it does not necessarily follow that the Act is in fault. The Act gives him the power to ascertain how much has actually been paid up, and if he ascertains that it is but a trifling sum, and still chooses to credit the company, it is evident he does so upon the assumption that the whole capital will ultimately be subscribed, and that he will, therefore, realise the profit to be derived from the transaction. If the scheme, to which he has by his actions rendered himself a party, fails, he can, but consider that he has embarked in an unfortunate speculation, from which he hoped to make a large profit; and that by grasping at the shadow he has lost the substance.

The Department of Science and Art have just issued their report for the past year, from which we learn that no change in its constitution has taken place. The Geological Surveys of the United Kingdom are carried on, in Great Britain, under the immediate superintendence of Prof. RAMSAY, and in Ireland under that of Prof. J. B. JUKES. The total fieldwork executed in Great Britain extends over nearly 1700 square miles. One sheet and 15 quarter sheets of trigonometrical survey, geologically coloured, have been published since the last report, embracing an area of about 2400 square miles, and comprising parts of the counties of Worcester, Salop, Chester, Stafford, Leicester, Nottingham, and Derby. Portions of these surveys relate to the coal fields of the central counties, and include 127 miles of horizontal sections, illustrating not only the known mineral wealth, but also the probable depth at which the coal-bearing strata may be beneath the broad bands of red rocks which rest upon them. Maps of North Staffordshire, Warwickshire, Northamptonshire, Gloucestershire, Wiltshire, Dorsetshire, and the Isle of Wight, are far advanced, and comprise an area of 2580 square miles. Towards the close of the previous year the Geological Survey of Scotland was begun, and about 117 square miles of Haddingtonshire have been mapped, and will be published.

There have been surveyed in Ireland about 1000 miles altogether, including 250 miles of an indented coast line. The field work has been chiefly made on the borders of Cork and Kerry, or the extensive tract stretching from Dursey Island to Mallow. Instructions have been issued to all geological surveyors, both in Great Britain and Ireland, to place on record the evidence upon which they have fixed the boundaries of the respective formations, and these documents, after revision, will in future be published with the maps. The Director-General reports that he is unable, without additional assistance, to obtain the palaeontological department of the survey in the fully effective condition he desires. The palaeontologist has been engaged in a re-survey of a part of South Wales, and has aided the local director for Ireland in examining the boundaries of the Devonian and carboniferous rocks. In addition to this field work the classification and arrangement of the fossils in the Museum of Practical Geology, and the Museum of Irish Industry, have made considerable progress. The naturalist engaged in the coast survey expects, during the present year, to report upon the surveys he has already made.

Much increased efficiency had been given to the Mining Record Office by the new arrangements made on the re-organisation of that office in 1854. Mr. ROBERT HUNT, the keeper of the records, had visited the various mining districts with the view of obtaining their co-operation. Mr. HUNT had published important statistical returns regarding the produce of tin, copper, lead, silver, iron, coal, and other minerals. In these he states that the annual drain upon our coal fields is about 64,000,000 of tons, a quantity much larger than was formerly believed to be the case. Previous to the re-organisation of the office, only about 69 plans and sections of Cornwall and Devonshire had been deposited in it. In 1854, 111 plans and sections were procured, and in the past year 219 had been added. The Metropolitan School of Science applied to Mining and the Arts continues its systematic courses of instruction. An elaborate enquiry on the composition of the iron ores of this country has been completed, besides other enquiries for the Ordnance and Colonial Secretaries.

Advances have been made in the preparation of catalogues for the Museum of Practical Geology, and it is hoped that a popular edition of them may be issued in the course of the present year. The Museum has

been opened five days a week instead of three, and the number of visitors during last year was 13,000, being about 3000 less than the previous year, caused it is supposed by the state of public affairs connected with the war. The combined institution had been usefully employed in aiding the public authorities in questions of importance, both as regarded the colonies and this country. Among those might be specified a report on the effects of the waste going on at Hastings Head, Hants, and on the coast to the east of it; researches made for coal in the Bay of Nicomedia, and the establishment of a survey in Trinidad, and other West India Islands.

The Schools for Scientific Instruction had been considerably developed during the past year, though the scarcity of properly qualified masters, and the want of adequate preparation on the part of the pupils, would make their growth comparatively slow. As a summary of his very elaborate report, Dr. LYON PLAYFAIR states that—

The museums and libraries of the department continue to be in an effective state, and have been visited by above 331,000 persons, being an increase of 36 per cent. above the numbers of the previous year. This increase is chiefly due to the new Circulating Museum of Ornamental Art, which has been visited by 55,701 persons in the provinces, and to the success which has attended the new arrangements made by the department in regard to the Museum of Natural History in Edinburgh, resulting in an increase of the visitors from the old average of 300 to above 100,000. The state of public affairs has caused a considerable diminution in the attendance on the museums in London, though it has had less effect on those in other towns.

The Botanical Gardens in Dublin have been visited by above 30,000 persons, and the Zoological Gardens by 135,000.

The exhibitions of the department have been attended by 72,000 persons.

The Geological Surveys in Great Britain and Ireland, and Mining Record Office, continue to be carried on with increased activity, and have made, during the past year, reports to the Government on various geological subjects of importance to this country and to the colonies.

The Schools of Art, including the Training School in London, have been attended by nearly 12,000 pupils.

The number of children taught drawing in public schools, through the agency of masters of art schools, amounts to 13,938; but although this is an increase of 80 per cent. above the return of last year, it is not sufficient to meet the public wants, and new measures are being devised to give increased development to elementary art instruction.

Instruction in art has been given to 2181 teachers of public schools, and the results of their examinations have been more satisfactory than in preceding years.

The Schools of Science, which have this year increased considerably in number, the working men's lectures in London, and provincial lectures in Ireland, have been attended by 10,000 persons.

Means of illustrating the courses of instruction by the diffusion of examples have been taken advantage of by 192 schools, at a cost to the schools of 1510£.

No great question was ever mooted but there was always some difference of opinion as to the method of practically carrying it into effect; it has been so with every political movement, and so it will be with all commercial enterprises. It may be remembered what great difficulties the first introducers of the railway system had to contend with; how years were allowed to elapse before the most eminent men were listened to, and the majority of the public ridiculed the project; they, however, persevered, and the result is the improved mode of communication now in use over the whole breadth and length of the land, by the introduction of the net-work of lines which have so abbreviated time and space, and placed the whole of the country within a comparatively short distance of the metropolis. The agitation of the miner to obtain his equitable and just due from the smelter is not of recent occurrence, it dates back for a considerable period; on one or two occasions it has assumed a practical bearing, but, owing to want of union, fear of the responsibility to be incurred, and deterred by the fabulous amount of capital that would be required, the commotion has been allowed to subside, and the Cornish interest has retired from the contest dispirited, and with a feeling that by no effort of theirs could they free themselves from the monopoly.

In the mean while several undertakings were projected in England for the exploration of copper mines in foreign countries. One of the earliest of these was the ALTEIN MINING ASSOCIATION, the working of which was first commenced in 1826. For a considerable period they sent their ores to Swansea; but finding discrepancies both in weight and assay, they determined to smelt on the establishment; and, since the year 1838, they have been enabled to do so at a profit, although all their coals and materials have to be carried from England, and, consequently, have to bear the increased rate of charges, freight, and insurance. At the Elbe Works, in Hamburg, the ores are obtained from South America, and all the requisite fuel and materials from this country. The Copiapo Company, who labour under still greater difficulties, on account of the long voyage to Chile, and necessarily increased cost on every article, find that it will be more profitable for them to reduce their ores on the spot than allow them to be at the tender mercies of the Swansea smelters.

Our correspondent, Mr. THOMAS IRVING HILL, who has greatly interested himself in the movement, has, in several important communications, practically shown the large profits the smelter obtains at the expense of the miner; at the same time we must observe, the remarks of several others cannot but fail to be read with attention, as they prove the desire of all concerned to unite, if we may so use the term, for their own preservation. Previous, however, to any premature step being taken, some firm and decisive mode of action between miner and manufacturer should be adopted, and the most approved methods of reducing the ores arrived at. It is well known that all improvements have been generally looked upon very coolly at Swansea. The reason of this, it has been stated, is that if such were practicable, there would be required great alterations in the furnaces; that no interlopers are wanted, they are satisfied with the present state of things; and in this remark we heartily concur with them, as they may well be.

A number of observations has been lately made on the solution of ores by the humic process, and this we are credibly informed is being practised successfully with mucky ores in Norway, 1/2 per cent. of copper paying every cost, so that the surplus obtained above that is clear profit; and it is reported that a gentleman largely interested in mining, both abroad and at home, has proceeded thither, in order to see the practical working of the process, with a view to its ultimate application elsewhere.

We need not say that if this be what it is reported, how extensively it might be used in Cornwall; and what a revolution it must create in the smelting of Cornish ores: we have endeavoured to obtain more detailed information on the subject, but hitherto with indifferent success; we shall not, however, relax in our exertions, and trust shortly to be able to furnish our readers with a full account of its working.

In the meantime, we would urge on the miners not to relax in their efforts; the movement has now attained some definite form; let the smelters see that they are now in earnest: even should the latter, fearing their onward march, for a short time profess to give better terms, and afford greater advantages, they must not be deceived. So soon as they imagine there is no longer any danger to their interests, and the excitement of a combined step is passed away, they will render their rules still more stringent than they are at present, and thus punish the miner for endeavouring to be independent of them. As we have always affirmed, we can again reiterate, if miner and manufacturer trade direct, the former will obtain a higher price, the latter pay lower than in their present transactions with the smelter, and the general consumer be benefited thereby.

Great dispute has lately been thrown on mining, and we cannot deny but that in many instances it has been done so deservedly; but what we repudiate, and that most strenuously, is that mining enterprise, speculation, or adventure—let it be classed under any name which the most faddish, hypercritical, or moral chose to designate it—has not inflicted greater misfortunes on the British public than other adventures. A short time since, a gentleman who had engaged largely in the China trade failed: on his examination it was stated his failure was owing to mining speculations, though before the Bankruptcy Court it was shown that his transactions in mines had been very limited. This is only one instance, but it appears that on every occasion there are to be found those always willing to carp at mining, more especially, if we may be allowed to use a legal term, when the venue is laid in England.

And scarcely an insolvency takes place where the parties have been shareholders in mineral adventure, but all other transactions in which they have been concerned are comparatively ignored, and their conduct in speculating in mines has been deeply deprecated and highly reprehended. So great does this prejudice exist, that we have heard persons who should have been better informed state that the late JOHN SADLER'S defalcations in the first instance could be traced to his connection with the Carson's Creek Mining Company. To attempt to confute such a statement would be ridiculous; the absurdity of the assertion is the best denial of the fact.

We will not enter here into the statistics of the production of the various minerals and metals in the United Kingdom, which are now being so ably given in the columns of the MINING JOURNAL by Mr. R. HUNT, of the Government School of Mines. Referring only to that of copper, published on July 19, we find the amount of copper ore raised and sold in Cornwall from June 30, 1855, to the corresponding period of this year,

209,305 tons, producing 13,274 tons 15 cwts. of fine copper, realising the amount of 1,283,639£; that sold in Wales during the same time, comprising principally foreign and Irish ores, was 48,481 tons, returning 6470 tons 11 cwts. of fine copper, of the value of 698,418£: making a total of 255,785 tons of copper ore, 19,745 tons 6 cwts. fine copper, and 1,982,057£ in money. The most cautious must acknowledge, looking at these figures alone, and the important branch of industry they are connected with, that there is great room for legitimate enterprise, and if only common caution were exercised, investing in mining would be as safe as in any other trade; we do not deny that there are risks, but we would enquire, are there not in every business, no matter what it may be?

One of the great evils, and which we have so often alluded to, is the practice of assuming "paid up shares," when such has not been the case; and we have pointed out several instances where parties have purchased, or advanced money on the security of such shares, fully impressed with the belief that the capital was really subscribed, and being employed to work the property; in many cases, not one-fourth the amount so stated has ever been forthcoming, and it is not until the association is being wound-up the shareholders are aware of their liabilities. A case was cited a few weeks since, where two of the committee returned themselves as debtors to a mine; had, in that instance, the money which was absolutely obtained from the proceeds been returned, the plant would not have been abandoned; as it was, numbers who had purchased their shares were discontented, and refused to make any further advances. It would be bad enough if the matter only ended here; the greater part of the adventurers, however, had no previous knowledge of mining, and the assumed responsibility of the directors, expended their money which was never applied to the purposes for which it was given,—and hence they retired with no favourable opinion of mining, and those connected with it. It may be said they had a legal remedy; they knew perfectly well the directors were not solvent; and our knowledge tells us there are many men of business who on this account do not like to let their names be known as mixed up with such transactions, and rather endure the loss than let the public know they have been duped. It is individuals of this description, aided by unscrupulous and incompetent agents, who throw such discredit on mineral enterprise; and the evil can only be corrected by the public themselves. First, let them not embark in any undertaking until they have ascertained the character of all concerned with it, let them attend meetings, and they will be able to judge for themselves of the state of the property they have invested their money in. These simple rules, diligently carried out, will shortly remove the odium under which at present mining adventure labours. The same remarks are both apposite to British and foreign enterprises.

A recent trial has shown us that insurance companies are not immaculate. We have no wish to enter into details which are already familiar to the public, nor is it our intention to advert to banking transactions, which have already become too notorious. We are always ready to and have exposed abuses whenever they have come under our notice, whether it has been at home or abroad. To the public we have always inculcated great caution; if they have despised our advice it has been no fault of the MINING JOURNAL, we must, however, protest, despite all that has been written, that mining enterprise should have a stigma cast upon it owing to the conduct of a few unworthy members of the profession, who have not the interest of mineral development at heart, but, for the purpose of enriching themselves, endeavour to conduct both good and bad mines without system or principle.

We have frequently shown the different result of money invested in the industrial branches of this country compared with British capital embarked in foreign enterprise, and in most instances it is found that the one is a source of profit, while the other is a great, if not total, loss. It is reasonable that it should be: at home there is direct supervision, and the power of correcting promptly any mistake or error, while transmarine undertakings, which are under London management, have to wait months for orders and instructions in case of unforeseen exigency; added to which breakages and losses may be repaired instantaneously in our land, whereas much time is wasted in foreign companies while the necessary materials are dispatched from this side. A case much in point has been made public this week by a report of the proceedings of a general meeting of its proprietors; we allude to the BERLIN WATER-WORKS COMPANY. Mr. JAMES DENIS on VILLENEUVE, one of the directors of the London and Westminster Bank, presided on the occasion, and we understand he is the Chairman of the company, a circumstance to which we shall presently allude.

The statement of capital account, made up to June 30, shows that the total amount paid up by the shareholders is 341,650£, which, with interest on loans and stock invested in Prussia, makes a total receipt of 347,975£. Against this there has been expended a sum of 316,157£ in works, machinery, and matters connected therewith; 20,700£ as interest to shareholders, and various sums for London management, legal expenses, &c., which absorb the balance, less 3700£, the nominal cash credit of the company at the date of the balance-sheet.

The object of this company is to supply Berlin with pure and wholesome water; a laudable object of itself no doubt, but why should English capital be led into such channels, when there are many similar undertakings connected with this country neglected, if not altogether rejected? The sequel of this is the sequel of nearly all, and if persons will so readily risk their money in such adventures, disregarding all caution and previous experience, they must abide the consequences. We have stated that the capital laid out is 316,157£, and to this is now to be added another 50,000£, which the shareholders authorised the directors to raise at their discretion: and as there was only 700£ in hand on June 30, it is not to be supposed that they will be tardy in effecting this financial operation to replenish their coffers, especially as the expenses of direction and audit, apart from salaries in London and Berlin, is set down at 2319£, or three times more than the actual available balance, for of 3701£, the nominal balance, 3000£, consists of "fifth call unpaid," and a doubt must necessarily follow whether any of this amount will be realised, when the price of the shares are 47, discount on 10% paid.

It is with the money received, and not with that actually expended in works, which we have to deal, and this, as already mentioned, is 341,650£, which having 50,000£ added thereto, will make, in round numbers, a total of 400,000£, on which dividends will be payable. It is true that 20,700£ has been divided amongst the shareholders in the shape of dividends, but as only a balance of 6282£ accrued to the company from their investments, it necessarily follows that upwards of 14,000£ was taken from capital. It would be absurd, therefore, to regard this as a legitimate dividend; and let us consider what are the probable resources on this head. The revenue at present is 1100£, and presuming that 5 per cent. will be paid on the loan of 50,000£, there will be a deficiency in this matter of 1400£, for we presume the loan will be preference stock; if not a positive advance by some bank or other party, and the interest must be adjusted thereon before the shareholders can participate in profits.

But as it is anticipated there will be considerable improvement in the present revenue by the extension of the works and otherwise, we will calculate that this augmentation of income will be sufficient to meet the whole of the interest on the 50,000£, and leave the present 1100£ clear for distribution. This is meeting the point liberally; it is allowing for a probable increase of upwards of 200 per cent. on the existing returns, and leaves 1100£ per annum. With this the company have to provide the salaries of all officials, rent of offices, &c., expenses of direction, and incidental charges, which are collectively set down at 6841£; as a total from the commencement, we presume, but which is sufficient to show that the annual expenditure on this head must be considerable. The chief engineer himself has, no doubt, a handsome salary, and the local staff must be large to carry on the necessary business. We will, therefore, further allow that the operations, and consequently profits, of the company shall extend still more rapidly, so as to meet all expenses, both in Berlin and London, and that still the present 1100£ shall be over and above. Now, to divide this on a paid up capital of 341,650£, would give an annual revenue to the shareholders of exactly 6s. 5½d. for every 100£ invested. The interest paid in London water-works companies is from 4 to 5 per cent., with the exception of the Grand Junction, which returns 8 per cent.

In calculating the possibility, or probability, of a yearly dividend of 6s. 5½d. per cent., we have taken the most favourable view which our present data furnish, but there is always a reverse impression in matters of this nature. Supposing that the revenue does not materially increase—that the "brewers and soap-boilers" do not find the water so useful in their requirements—that the "locomotives on the several railways" do not adopt it, and that all the other expectations which the "directors anticipate" fail, which, if similar to the latter, must end in

disappointment, we think, what then will be the result? Indeed, it does not seem probable that the railways will adopt the water merely for the sake of reducing incrustation, for it would entail either the carriage of the water to each water station, or the expense of laying down pipes throughout the whole length of the lines. The consumption in the city is the only legitimate source whence income can accrue; and admitting that this will in time produce larger returns, it will, nevertheless, be necessary to provide an annual sum of £19,582, to continue the dividend of 5 per cent. on this capital, and to pay it on the proposed loan. Against this there is £1,000. The dividends must, therefore, be suspended or paid out of capital, and if the latter course be adopted, the shares remaining on hand must be sold at the present discount. Those held by the company represent a sum of £350,000 at par, but as the quotation in the market is 4/- under this price, this resource will realise little more than £300,000; and we are compelled to adopt the already suspected conclusion, that the proposed loan of £50,000 has chiefly for object the continuance of 5 per cent. interest, and not in order "to provide for some outlay connected with laying on of service pipes," which necessarily were, or ought to have been, provided for in the original arrangements of a company which had for object solely the supply of water through "service pipes."

The shareholders have only themselves to blame for the position in which they now find themselves. We have always done our part to deprecate foreign, and to encourage home, enterprise,—we mean where British resources are put into transmarine, in preference to English associations. There are others in equal difficulty, and we will draw attention to them as opportunity occurs.

The manner in which different items are joined under one head is striking in the statement of the Berlin Water-Works Company. It is a practice adopted frequently, we are aware, but which always throws suspicion over the whole. Here we find "direction and audit" associated in a total of £23,197. 16s. 6d.; but it must be apparent to the most simple connected with public companies, that the expense of "auditors" is a mere nothing, as compared with the outlay inseparable from "directors." No doubt almost the whole of the amount named was absorbed by fees and expenses of the directors, who were ashamed to see so large a sum placed before a proprietor whose dividend was paid out of capital, and the item was, therefore, mystified by adding "audit."

Again the company declares itself debtor to "interest on loans and Prussian Stock" in £133,17. 14s. 5d., yet it immediately appears that the "loss on sale of stock" was £51,17. 7s. 1d., leaving the balance as already mentioned, £28,242. 7s. 4d.; this latter sum is, consequently, the only profit made to the company by "interest and loan," and not £133,17. 14s. 5d. Here "loans and Prussian stock" are ingeniously mixed together, that the amount invested in Prussian stock may not be seen; but, presuming that the whole was in the latter, we find an admitted loss of £51,17, which is more than 10 per cent. of the whole of the "interest on loans and Prussian stock."

In mentioning the name of any gentleman as connected with the London and Westminster Bank, acting as chairman—or in the chair—at this meeting of the shareholders of the Berlin Water-Works Company, we desire only to draw attention to the fact, which we have ever deprecated, of directors of London banks being constantly "lent" to companies for securing their accounts. The extent to which this is carried is notorious; but we are pleased to say that one of the new banks located at the West-end at once resolved that no director should be, directly or indirectly, identified with companies or associations, in such a way as to lead to the suspicion even that the desire was to bring business to the bank.

That the London and Westminster Bank, which professes to rival the Bank of England with its "governor and court of directors," should sanction such proceedings is indeed surprising, and thus to allow members of the "court" to be regarded in the light in which they are when their names appear in association with new projects. It cannot be supposed that any gentleman of standing joins these companies for the mere fees of office, but as the innocent agents and instruments of the long-sighted managers of the banks of which they are directors. There have been more than one instance lately in the City of London where much discredit, if not difficulty, arose from analogous causes; it is cheering, therefore, to find, as we have already mentioned, that there is an exception on the part of one of the new banks.

THE MINING AND INDUSTRIAL INTERESTS OF CORNWALL.

[FROM OUR CORRESPONDENT IN WEST CORNWALL.]

Aug. 21.—The low rates to which some even of the best dividend mines had fallen induced purchasers to come forward from different parts of the kingdom, and in some cases they have taken the place of local shareholders, who were frightened, principally by the fall of the standard, and the apprehension of much-reduced dividends. That apprehension is not likely to be realised, if the mines retain their productiveness, inasmuch as the lower prices of materials are in their favour; and, should we have a full harvest and cheap food, the cost of labour may slightly decline, though not much, because now—since the extensive emigration which has continued for some years—there is not the competition there formerly was amongst the working miners. The share business, however, even in good dividend mines, during the week, has not been very active. Buller is slightly recovering in price, and, as the eastern shaft gets deeper, will in all probability further advance. Basset has been in some demand, at 290/- and 300/. There have been enquiries for South Frances, in which mine a great deal of confidence is felt; shares are about 310/- North Basset is raising ore of rich quality, and opening up some excellent ore ground; and, in consequence, shares have advanced. In Great Alfred shares have changed hands, both in Cornwall and in London, consequent on the increased productiveness of the mine. In Rosewarne United there are some good objects in view, in driving towards courses of ore seen in the upper levels; when either of these points are reached, shares are likely to rise. Buller and Basset United is presenting good indications, and is thought well of by some local gentlemen. At South Carn Brea the ground continues hard, yet the position and indications seem to warrant a vigorous and sustained working. North Frances is economically managed, and the shareholders seem determined to give this promising mine a spirited trial. Pende-an-dreis is looking well in the deep levels. Wheal Margery is producing a good quantity of ore. At South Wheal Ellen the lode in the shaft is reported to be producing 2 tons per fathom; the lode in the winze in the 20 west, 7 tons per fathom.

At West Seton account, last week, the same amount of dividend—6/- per share—was paid as at the previous meeting, but the balance was reduced about 350/-; this is attributable to the fall of the standard. The sales of ore realised 4382/-; at the previous two-monthly account the sales amounted to 4778/-. The last sale of West Seton ores was on July 31, when they realised 2836/. The same ores, if sold two months previously, would have made about 130/- more.

There is a sad want of spirit amongst the Cornish shareholders with regard to the Smelting Question. It was the same with them when the Mines Rating Bill was first attempted to be thrust upon them, until some energetic individuals brought up the subject at mine accounts. Then, when the movement was commenced, the Cornish shareholders could arouse themselves fast enough, could call a public meeting, and elect an influential working committee to oppose the measure energetically. Why are not some such active and practical steps now taken in regard to the smelting question? Do the Cornish mine adventurers wish to remain always in bondage to the smelters, depending on them (as was said at the Camborne Agricultural Meeting) as to whether their bread shall be white or brown? Where are the capitalists and respectable adventurers connected with Devon Consols, Wheal Buller, Basset, North and West Basset, South Frances, West Seton, Great Alfred, Alfred Consols, and other mines, that they do not combine, and smelt for themselves, and manufacture their copper also, and save some portion of the heavy returning charges now drawn from them, and have the benefit of the assay which now falls to the smelters, and save themselves from the machinations of a few great capitalists, who squeeze them for the sake of adding to their already enormous wealth, and sometimes drop the standard suddenly and without due cause, to serve their own purposes, and bring loss to the extent of thousands of pounds upon many honest persons who had embarked in mines to the full extent of their means? The present system badly needs reformation; but it is only ridiculous to hear mining shareholders complaining, and to see that they do nothing towards removing the causes of complaint.

Some time ago it was stated that Captain Hancock, of Polgoon Mine, near St. Austell, had invented a machine which was calculated to effect a great improvement in tin dressing. As this is so very important an object, and if achieved would add to the value of the tin mines of the country, it is to be hoped that Capt. Hancock, or some other competent observer, will make public the results of his new method.

The chief interest of the industry of Cornwall consists in its pil-

chard fisheries, in which a large number of men are employed at the ports on the northern and southern coast. There have been some fine catches during the past week, at St. Ives, Port Isaac, Porthleven, Port Looe, Mevagissey, &c. Hopes are entertained that the season will be a very successful one. The pilchards are appearing in large quantities, and of a finer quality than have been taken for some years.

REPORT FROM YORKSHIRE, DERBYSHIRE, AND LANCASHIRE.

[FROM OUR CORRESPONDENT IN CHESTERFIELD.]

Aug. 21.—The future prospects of the Iron Trade are, on the whole, of a more encouraging nature, orders since our last having been more freely given out. The demand from the United States has improved, and the continental orders have been more plentiful. There is but little speculation, and the orders which have been given out are mostly required for immediate use. The makers of second-class iron in Staffordshire are very pressing for orders, and at prices considerably below the established rates of quarter-day. In Yorkshire and Derbyshire the houses are well employed, and able to continue in full employment. The Park Gate Works, Rotherham, are engaged in the execution of some large contracts for rails.

Mr. Bessemer's process for the manufacture of malleable iron and steel is exciting very general interest amongst the ironmasters of Yorkshire and Derbyshire. The economy which Mr. Bessemer professes to have effected has long been desired, as the present process is by far too costly, and not the most direct method of attaining the desired ends. Several firms at Sheffield, very highly interested in the trade, are about to try the process; and if it should succeed, we may expect a revolution in the steel trade. We noticed, some few weeks ago, the commencement of the erection of some blast furnaces at Whittington, near Chesterfield. We are now enabled to state that the erection of them is proceeding very satisfactorily, and that it is intended to build some works of great magnitude in connection with them, for the purpose of manufacturing bar-iron and steel. Although there are great facilities in the locality for the making of that metal, the intended works under notice will be the first to commence the steel trade in the neighbourhood of Chesterfield. In anticipation of the employment which the works will afford to a large number of the population, a large quantity of land has been sold to private gentlemen for the purpose of erecting cottages. The company intend to commence, as soon as possible, the erection of 100 cottages for the workers. It is very probable that Whittington will become a very populous place, as its mineral riches are about to be more fully developed.

The Coal Trade is very much depressed, and notwithstanding this fact the increase in the mineral traffic on the Midland Railway during the past half-year has been 11,000/-, a remarkable sum. We look with satisfaction to the opening of the Ripley coal branch of the Midland Railway, as it will afford an exit for the minerals of a very important part of Derbyshire. An important mineral line was opened on Wednesday; it was the Gildersome branch of the Leeds, Bradford, and Halifax Junction Railway. The branch is only about six miles in length, and has been constructed by Messrs. Smith and Knight, contractors. It commences with a junction with the Leeds, Bradford, and Halifax line, and proceeds to the termination of the branch at Gildersome. The line threads a region of hills and valleys rich in mineral wealth. The directors anticipate great advantages from the line, both for themselves and the shareholders, as well as the public, as it opens up access to a rich coal-field of vast extent. In anticipation of heavy coal traffic, the rails have been laid on longitudinal timbers, and are much heavier than those on the main line.

The mineral wealth lying in immediate proximity to the branch is enormous, and many of the extensive colliery proprietors have taken measures to place their works in conjunction with the newly-opened line. In the neighbourhood of the Gildersome station are the collieries of Messrs. S. Holliday and Co., J. Holliday Brothers, and Mason and Asquith; near Drighlington and Adwalton station are the pits of Messrs. Bower; Messrs. Harrison are forming a new shaft at Adwalton Moor, near the Leeds and Whitewall turnpike, and sidings in connection with it have been constructed; and the Oakwell Colliery, Messrs. Ackroyd's, is situated at a short distance from this, close to the line. These collieries, it is estimated, will produce some 10,000 tons of coal per week, or from 500,000 to 700,000 tons per year. The opening of this vast coal-field will, therefore, be of immense advantage to the large manufacturing towns of Bradford and Halifax, as well as the intermediate and more distant places, particularly as it will afford a great desideratum in the quality of the coal produced—viz., "household" coal. The adoption of Laister-dyke junction for the termination of the line is certainly judicious, for at this point the Leeds, Bradford, and Halifax Junction (virtually an extension of the Great Northern from Leeds), branches off to Bradford down an incline, and, via Bowling, to Halifax. The journey from Halifax to Gildersome will occupy rather more than an hour; from Leeds, an hour; and from Bradford, 30 minutes. The branch, however, is rendered of more importance by the fact that it is not intended to finally stop at Gildersome. The Ardsley Extension Line is a link of 4½ miles in length, and will carry the line forward from Gildersome to Ardsley, where it will unite with the Bradford, Wakefield, and Leeds Railway, and thus give access in every direction to the rich coal-fields of the Gildersome and Ardsley districts. The extension line is in course of construction, and it will be completed simultaneously with the Bradford, Wakefield, and Leeds line, which is to be completed in April, 1857.

The strike at the Oaks Colliery has not terminated, and such of the men who occupy the proprietor's houses have been served with notices of ejectment, amounting to about 100. Mr. Hedley, of Bristol, the Government Inspector of Mines for Derbyshire, is actively exerting himself to obtain subscriptions in aid of the sufferers by the recent Cymmer Colliery explosion in South Wales.

THE IRON AND COAL TRADES OF STAFFORDSHIRE.

[FROM OUR CORRESPONDENT IN WOLVERHAMPTON.]

Aug. 22.—The Iron Trade in this district appears to present some indications of improvement. For some time it has been felt that orders were being kept back in the hope of a fall in prices, but the leading houses have steadily resisted any reduction, and orders have to some extent been received, which it is thought would no longer be withheld. The Baltic rivers will close next month, and the water carriage in Canada and the United States will not long enable goods to be transported to the interior. These facts fully account for the slight increase of orders, which, however, are not equal to the wants of the trade. Stocks of pigs are said to be largely increasing, and it is stated that the smaller makers are accepting much lower rates than those of quarter-day; while a similar class of producers of manufactured iron are underselling to an extent that suggests heavy failures, unless a change for the better is shortly experienced. For one formerly very important article in this district—namely, rails—there are more enquiries. The price in Wales is slightly firmer, owing probably to contracts taken there for 20,000 tons for France, and this re-acts upon Staffordshire. In a former letter, I referred to the importance of the question of producing here rails of equal quality with those made in Wales at the same rate, and it is hoped that this will be found practicable. As must follow from a diminished make of iron and lower prices, raw material, coal, and stone are most plentiful; but the present sudden change in the weather, from intense heat to a temperature cold for the season, with rain falling in continuous torrents, will tend to increase the demand for coal.

The invention of Mr. Bessemer, as stated in his paper, given in *extenso* in last week's *Mining Journal*, has excited great interest amongst the ironmasters of this district. The impression respecting it appears to be favourable to its practicability, and there is a general disposition to examine its merits; and if found practicable, to adopt it as soon as the necessary preparations can be effected. Several ironmasters have already gone up, or are going, to Mr. Bessemer's to see for themselves; and the question is being actively discussed on all hands. Some anxiety is felt as to the terms on which the inventor will permit his process to be employed. Should his charges be very high, it is probable that it would lead to efforts to evade them by other inventions, by secrecy, or by false returns. He will probably see the wisdom, while he preserves to himself the power to reap a handsome reward for his discovery, of rendering it available at a reasonable rate of charge. What will be the effect of the discovery, if it should prove successful, on the iron trade of this country and this district is difficult to determine. It would almost certainly diminish the export of pig-iron, as it would directly tend to combine in one place the smelting of iron ore, and the manufacture of finished iron; and so far it would appear likely to injure the Scotch trade, unless, as is probable, they should

adopt it, and produce finished iron instead of pigs. It would certainly cause the abundant supply of coal and labour to be less important elements in the manufacture, and so would probably help America, France, and Prussia to produce greater quantities for their own use. Its effect in doing away with the work of the furnace men is no unimportant aspect of the question; and although this class of workmen has always been exceedingly difficult to deal with, the destruction of their trade cannot be anticipated without some anxiety, for English artisans do not readily turn their hands to something else."

Our local *Chronicle* thus remarks upon Mr. Bessemer's paper:—

"Iron bars until a comparatively late date, were all forged, and iron plates formed under the hammer; and Dr. Plot, in his *History of Staffordshire*, notices with admiration that William Chetwynd, of Rugeley, had cast at his furnaces at Madley iron garden rollers of 7 or 8 cwt. each; adding, however, 'for such purposes as these this serves well enough; but for others it will not, for it is so brittle that, being heated, with only a single blow of a hammer it will break all to pieces.' A fact strikingly demonstrative of the inferiority of the material employed. Let us for a moment fancy such a state of things now! The formation of one-half of the iron now made would be impossible, and to nearly half its present uses iron could not be applied. The hot blast was next introduced, and, besides increasing the quantity of iron obtained from the ore, became the means of extracting iron from a mixture of ore and fuel that hitherto had defied the greatest obtainable heat. Thus has the iron trade progressed until it stands, in value exported, second to none in the kingdom—in fact, giving evidence that it will soon become the greatest trade in the world. Even to sketch its rise and its progress would be to exhibit what we might almost term a commercial miracle—for though a little older than the cotton trade, its extension of late years has been more rapid than that of the cotton trade that the world has ever seen. Such as we have depicted is its present position; and let us for a moment consider how deeply that position affects not only ourselves, but the whole world. Let us conjecture the trade to be in the position that it was in only fifty years ago. The total make of pig-iron then in England, Wales, and Scotland was 258,206 tons: it is now about three millions. Let us fancy the amount of employment given by this astonishing make reduced to its amount in 1806; and let us further fancy, if we can, the effects of the withdrawal of the many extra millions of tons of iron that have been furnished since 1806 for the use of all nations—for the advancement of the moral and physical interests of all mankind. Not an iron ship, not a railroad, could have been constructed; and of how many other articles should we have been deprived? Yet further development, a further extension of the manufacture, astonishing as it may seem, appears at hand. At the meeting of the British Association, Mr. Bessemer read a paper detailing a series of experiments giving promise of an improvement in the making of iron inferior to no one that has yet been introduced; by this process not only will the laborious practice of puddling be superseded, but other advantages will be gained, and a superior make of iron be obtained. Less ore will be lost, and coal for puddling will not be needed. In fact, after one operation of a comparatively simple and inexpensive kind, the iron from the blast furnace is converted into malleable iron ready for instant conversion into bars or sheets or other shapes required. Mr. Bessemer says that by running the iron from the blast furnace into a suitable brick cylinder, he can, by a blast of compressed air, and without any fuel, raise it to a degree of heat never before attained; that he can either draw it off before all its carbon is expelled, and then it is semi-steel, or he can complete the process and draw for malleable charcoal iron, free from many of the defects which are incident to iron produced by the old methods. This is a very brief account of Mr. Bessemer's invention and its results. We give this statement in full [see Supplement to last week's *Mining Journal*], and to it we invite the attention of our readers. It is lucid—it theory appears to be fully confirmed by experiments; and if these experiments are not only well founded, they must be correctly stated] differed in common practice, we cannot but consider that the iron trade is on the eve of one of the greatest changes it has yet experienced. In social or national effects we do not venture to notice further than to invite to them close and serious consideration. The reading of Mr. Bessemer's paper, we may add, produced quite a sensation at the meeting. The room, we are informed, was crowded by those who, knowing nothing about it, did not believe it, and those who, understanding it, were glad to find it could be done. Nasmyth (it is added) was running about at the *conversations* mad with excitement about this iron, which, having been melted without fuel, and cooled without having formed scoria, was to the knowing ones a great discovery, and was heard to say, 'Eh mon! it's now to make an ironmaster's mouth water to see.' The iron, which is altogether decarbonised, is turned out with all the bright appearance of silver, and the scintillating little masses of white metal which lay about the table were, to the unscientific lookers-on, as much like iron as the moon is said to be like green cheese. As an interesting appendix to our preceding remarks, we may notice that cast-iron is malleable as hammered iron has been made, and that in a country where such an improvement would be little expected. Of the process no account exists; but it may be conjectured to have been similar, though upon a smaller scale, to that of Mr. Bessemer. Its application by any other mode would add to the curiosities of the proceeding. Mr. Eaton, in his *Survey of the Turkish Empire*, states the following circumstance as having occurred to his own knowledge:—An Arabian of Constantinople had discovered the secret of casting iron which when it came out of the mould was as malleable as hammered iron. Some of his fabrication was accidentally shown to M. de Gaffron, the Prussian chargé d'affaires, and M. Franzaroli (men of mineralogical science), who were struck by the fact, and immediately instituted an enquiry for its author. This man, whose art in Christendom would have insured him a splendid fortune, had died poor and unknown, and his secret had perished with him. His utensils were found and several pieces of his casting, all perfectly malleable! M. Franzaroli analysed them, and found there was no admixture of any other metal. M. de Gaffron has since been made superintendent of the iron manufacture at Spau, where he is vain attempted to discover the process of the Arabian."

A most melancholy explosion has taken place at a colliery belonging to Lord Ward, near Oldbury, called the Ramrod Hall Colliery. The mines had only been opened for eight or nine months, and were not, therefore, in full operation. In consequence of some repairs to the pumping apparatus in an adjoining pit, the pit where the explosion occurred had not been worked since the Saturday before the accident. On the Wednesday morning, on the first band of men descending with a naked candle—the rule that a man should first try the pit with a safety lamp being disregarded—they found that there was a good deal of foul air, and took the wise precaution of extinguishing the candle. When they reached the bottom, they shouted to the banksman to send down a safety lamp lighted. A second band of men, amongst whom was Thomas Baker, the butty, was just then being lowered, and Baker said, "Get in, lads; there is no sulphur, I should think." He also had a shovel full of fire put on the skip, doubtless to light the candles, and, though he sent for a safety lamp, the skip was lowered before it was brought. When the skip had descended, with the open fire upon it, for about 20 yards, an awful explosion took place. Baker, the butty, whose rash conduct had caused the accident, and nine others were killed, the remaining six men being severely injured, and rescued with difficulty. Mr. L. Brough, the Government Inspector, has been diligently enquiring into the cause of the accident. At the first meeting of the coroner's jury he stated that two rules had been violated—one, in not providing a furnace for causing an upward draught in the upcast shaft; and the other, in the neglect to examine the pit by means of a safety-lamp before the men descended. The inquest is adjourned until Tuesday next, when further evidence is expected to be given. The recklessness evinced by the butty, Baker, strikingly shows in what unfit hands the lives of thousands of miners are placed.

STOCK, MINING, AND RAILWAY SHARES IN IRELAND.

[FROM OUR CORRESPONDENT IN DUBLIN.]

Aug. 21.—Government Stocks have been drooping this week gradually, and they close to-day 7s. 6d. below the opening price of the week, both for Consols and New Three per Cents. Business also has been dull, and this dulness prevailed also in the share market, but prices were in general maintained. Mining shares were somewhat better. Those of the Mining Company of Ireland are gradually advancing, and seem likely to go higher, as it is believed that the prospects at the several mines are excellent, and hopes are entertained that the experiments going on at Ballydeehob may prove successful. Wicklow Copper Mining shares were 10s. better, but owing to the small proprietary, these shares are but seldom dealt in. In prices of railway there has been but little change, if I except Waterford and Limerick shares, which fell fully 2½. The following are the latest quotations:—Consols, 94½; New Three per Cents., 94½; Royal Bank, 22½; City of Dublin Steam, 63; National Insurance, 28; Patriotic ditto, 7½; Consumers' Gas Company, 8½; Mining Company of Ireland, 36; Wicklow Copper Mine, 32; Belfast and County Down Railway, 29; Dublin and Kingstown, 170; Dublin and Wicklow, 6½; Great Southern and Western, 59; Midland Great Western, 55; Killarney Junction, 10½; Irish South-Eastern, 7½; Waterford and Kilkenney, 6½; Waterford and Limerick, 26.

At the half-yearly meeting of the Belfast Junction Railway, on Saturday, the statement of accounts to be then exhibited will show an increase of £2000, over the corresponding period in 1855. The total income on the half-year has been £1,000, and the total expenditure £1,340, leaving a balance of £19,660, which, with the amount carried forward from the last half-year, £813, makes £27,472, available for dividend; and out of which sum the directors recommend a dividend of 5 per cent., less tax, after which 7647. will remain to be carried to the next half-year. The directors recommend the shareholders to subscribe for the 5 per cent. preference shares of the Dundalk and Enniskillen Railway, to enable the latter to complete the line to Enniskillen.

The half-yearly report and statement of accounts to be presented at the Great Southern and Western Railway meeting, on Tuesday, show a very satisfactory increase in the traffic receipts, as much as 14,400/-, which will enable the directors to declare a dividend of 6 per cent., less tax, leaving £6400/- to be carried to the next half-year. The report states that this dividend can be continued, judging from their present prospects; and the directors ask the proprietors to grant them power to apply to Parliament for an extension of capital to the extent of £250,000. Of this, £180,000 is to be applied for expenses being incurred for additional rolling stock

and new works in progress; the remaining 70,000^t. to meet future traffic requirements. As yet, the dispute with the Midland Great Western Company has not been adjusted, and the matter has been referred to the Board of Trade for settlement. The report next refers to the forgeries of the late officer of the company, J. M. Knighting, but the extent of these forgeries are not yet ascertained, nor can they be till the dividend warrants are issued; the amount already discovered is large, and it is expected that the amount of the convict's property, which was forfeited to the Crown, will be handed over to the company, on petition.

Nothing forms a greater auxiliary to the labours of the geological student than a correct, well-coloured, and finished geological map; and it gives me much pleasure to inform your readers that the eminent and enterprising firm of Messrs. O'Neill and Duggan, of this city, have been appointed agents for the Hon. Board of Ordnance in Ireland, as also for the sale of Griffith's geological maps, and those of Mr. Wyld, the eminent geographer of London. The mapping department has been placed under the able control and management of Mr. J. A. Robinson, so long connected with the Ordnance Survey of Ireland; and from Mr. Robinson's ability and great experience, I feel sure that all surveys, valuations, and mapping connected with this establishment will be done in a manner which must prove highly satisfactory. I have seen some of the geological maps already sent out, and the style in which they have been got up reflects great credit on the Messrs. O'Neill and Duggan for the spirited manner in which they have come forward to supply a growing want; the great interest which is now being felt in the geological structure of Ireland must cause an extended circulation of these maps, and their distribution will not fail to bring many devotees to the altar of geological science.

THE IRON TRADE—ITS STATE AND PROSPECTS.

The mills and forges have been doing good work during the week, and a few sales of pig-iron have been made, but still orders from the ports come slowly in, and the demand is not at all first-rate. It seems very certain that no alteration in price will take place yet; it is also certain that at present a reduction in men's wages will not be made. Most of the surplus labour in the district is gone harvesting, and I hear great complaints are made by the agriculturists of the want of hands. The make of pig-iron is still as great as ever, but the best makes are not increasing at all in the proportion of common ones. It is not anticipated by the best judges that existing prices will be disturbed at the preliminary meeting of the trade, which will be held on Thursday, Sept. 28. Mine is plentiful, and worth less; as also is coal. Some of the North Staffordshire pig-iron makers are anxious to sell into South Staffordshire, but their prices are too high.

As you may readily suppose, we have read Mr. H. Bessemer's paper upon the Manufacture of Malleable Iron and Steel without Fuel, which he read to the British Association on Monday, Aug. 11, with great interest, and I shall look forward most anxiously for further particulars. I should like to know what the quality of pig was which he used in his experiments; whether it was cold air, hot air, mine, cinder, or any of these kinds mixed? There are as many qualities almost as firms, and as 12 $\frac{1}{2}$ per cent. is the loss stated, it would be well to know. The whole loss sustained by "boiling," and in the mills, he states at 18 per cent.; but I think 5 $\frac{1}{2}$ per cent. is too little to reckon on for the latter. I would remark, that such forge iron as is made in South Staffordshire only requires as much rolling as Mr. Bessemer claims for his ingot,—viz., "as much as is necessary for the development of fibre." Although the ingots run into a mould made exactly to a weight for rails, &c., would be most convenient, still our small bars piled are just as convenient to get at the proper weight, without unnecessary waste. Upon the whole, I am glad such experiments have been made, and it is to be hoped they will be perfected and brought into general use. In South Wales, at this time, the metal is run direct from the furnaces into the refineries, and blown with coke at a low pressure (say from 2 to 3 $\frac{1}{2}$ lbs. to the inch); but 10 lbs. to the inch is beyond the mark of the greatest blast ever used, and the anthracite pig makers never supposed it; although I have heard that some blowing engines are being erected in South Wales capable (if required) to blow 9 lbs. to the inch. Mr. Bessemer has my thanks for his experiments, and, although I have scarcely known one patent out of one hundred ever pay for the cost of taking it out, I hope this may be an exception to the rule.

I may observe that there is not any one in this district who now puddles the metal run direct from the blast furnace, on account of the uncertainty of the quality, and other matters which counterbalance the advantage of having to put cold iron into the puddling furnace, and the waste of time consequent thereon.—IRONMASTER: Worcester Journal of this day.

BESSEMER'S IMPROVEMENTS IN THE MANUFACTURE OF IRON AND STEEL.—In our last week's Journal we published the paper read by Mr. Henry Bessemer, at the meeting of the British Association for the Advancement of Science, at Cheltenham; in that we detailed the several improvements and the mode by which Mr. Bessemer—in a much shorter process than that at present used, and at considerably less expense—from the pig produces malleable iron. Yesterday, at Baxter House, St. Pancras, we had the opportunity of seeing Mr. Bessemer's improvements practically tested, and we must, in justice, say that they far exceeded our expectations. In the paper read by Mr. Bessemer, he so ably described the theory upon which he acted, that it is needless for us here to further dilate upon it; our task is merely to describe that which we saw practically carried out. In a common cupola furnace, a quantity of pig-iron was melted down, then this was tapped into a ladle, weighed (6 cwt., 3 qrs., 18 lb.), and poured into the converting vessel, and, after a short period, the mass began to boil; about 10 minutes after the boiling, and when the ebullition had ceased, the metal was tapped into a form, and on being weighed the result was 6 cwt., thereby showing the little loss that had accrued. The process of introducing the molten metal, and then, by the action of cold air, freezing it from extraneous matter, so that it becomes malleable, is certainly a great stride in the manufacture of iron, and when largely carried out, cannot but prove beneficial to all those concerned in the iron trade. The grain of the iron, when fractured, was similar to that of an ingot of cast-steel. We are not going to enter into any discussion of the saving of time, labour, and expense that will be derived from the application of the present invention. The subject has invited a great deal of enquiry and excited great attention. Among those present yesterday were Professor T. H. H. Henry; Major Sitwell; Mr. Bailey Toms, of the Derwent Iron Company; Mr. Joseph Robinson, of the Ebbw Vale Company; Messrs. Alfred Wills, A. M. Perkins, Edward Hickman, F. G. Bramwell, Thomas M. Gladstone, J. G. Begbie, Alfred Longdon, J. T. Pridgeaux, Robert May, William Smith, Benjamin Burleigh, Edward Vigers, and William Carmichael. The general opinion being that if the invention was practically carried out on a large scale, it would be of a great advantage, and much more economical, and of greater commercial value, than the processes now in use.

IRON AND CAST STEEL MANUFACTURE.—At the British Association meeting, an important paper, relating to the manufacture of iron, was read by Mr. Worsley, who entered very fully into the details of Dr. Gurn's invention, which is an attempt to introduce into England the principle of "gas fuel" in a more perfect manner than hitherto. There is no novelty in applying gas as fuel, the gases from high furnaces having long been used for heating blast or steam-boilers, and for puddling, but in these cases the gas is ready made, and the only question is, economising a waste product; the present object is, however, the conversion of fuel into gas, and its application in this form in preference to the solid state. Dr. Gurn's process is an application of the "*treppenrost*," and he proposes first to reduce and carbonise iron ores free from sulphur and phosphorus, by passing gas produced in a generator through a column of the ores; supplying at the same time sufficient air to burn a portion of the gas, and give the necessary temperature, and then to smelt the product in another furnace. The furnace consists of a sloping shaft, open at top, and closed by an iron door at bottom. In this shaft the iron ore is placed, being thrown in at the top and drawn out below. At each side of the shaft is a gas generator, the gases from which enter about two thirds down. Just before entering, air, to burn a portion of the gases, is introduced, being supplied as well as that to the generator, by a fan blast. By supplying more or less air, and consequently burning more or less gas, the heat produced can be raised or lowered at will. The hot gas and flame entering the shaft, heat and reduce the ore, and pass upward, getting cooler as they ascend, and finally escape at the top; consequently the heat is greater where the flame enters, and diminishes above and below. As soon as the ore gets a foot or so down the shaft it becomes heated to about 100° Fahr., which drives out

all the water it may contain, and is then reduced by gases it meets. The highest temperature necessary in the furnace is a bright red heat. The iron descending below the flames comes into the cold part of the furnace, and is there cooled down before being drawn out. The new furnace is equivalent to the upper half of an ordinary iron furnace, but has several advantages over it—there is no loss of combustible gas, for the reduction and carbonisation of the ore exhausts the gases entirely, and no more gas is admitted than is necessary. This regulation of supply is very easy and perfect; thus, if it should be found that the ore is getting very hot, but is not properly reduced, by diminishing the quantity of wind the evil is counteracted in two ways—the heating effect is diminished, and the reducing effect increased in the same proportion. In the common high furnace, a certain quantity of fuel must be consumed at the bottom of the furnace to smelt the iron. The carbonic acid from this combustion passes upward, takes up a quantity of carbon, becoming carbonic oxide, most of which escapes unused, the quantity produced being far more than is required for the reduction of the ore; by Dr. Gurn's process this loss is avoided. As the iron does not come in contact with the fuel, it cannot take up any of the impurities existing in the ash, as silica or phosphorus; hence it will be equal to charcoal iron. The quantity of carbon to be taken up by the iron can be regulated by allowing it to remain a longer or shorter time in the furnace. Dr. Gurn's furnace is, in fact, a couple of gigantic blowpipes, both playing on nearly the same spot, and thus increasing to a high degree their effect.

THE IRON TRADE.—The following is a weekly report, to August 19, forwarded to us from Glasgow by Mr. Thomas Edington, showing the principal contracts for rails, castings, and machinery, known by him to be in the Iron Markets of Great Britain and Ireland:—

CONTRACTS TAKEN IN GLASGOW.

2800 tons railway chairs, for Spain.
500 tons water-tank plates, two Condie's patent steam hammers, gas-pipes, &c., for Queenstown.

IN DERBYSHIRE.—3000 tons water-pipes, &c., for Torquay.

NEW CONTRACTS.

24,000 tons large water-pipes, for Glasgow.
200 tons chairs, for the Taunton Railways Company.
Two tank locomotive engines, for the Birkenhead Railway.
Two winding engines with boilers, for Holywell, Flintshire.
200 sets railway wagon wheels and axles, for Nova Scotia.
22 cast-iron cylinders, and 500 tons beams and pillars, for Glasgow.
A gas holder, tank, &c., for Endfield Lock.
Iron railings, for Rickmansworth.
Gas castings, for Clevedon and Wicklow.

THE FATAL COLLIERY EXPLOSION IN GLAMORGANSHIRE.

The investigation into the cause of the death of the 114 persons killed in the late explosion of fire-damp at the Cymmer pit, Glamorganshire, has at length been brought to a termination. After a short adjournment at the close of the evidence, the Court resumed, and the CORONER proceeded to sum up. Having taken the jury for the very diligent attention which they had manifested throughout the enquiry, he pointed out the importance of the investigation. The two important questions for their consideration were—what was the original cause of the explosion? and whether it was the result of accident, or negligence, or omission on the part of any of the persons entrusted with the management of the pit? It was somewhat difficult to define the distinction between an accident and a case of manslaughter—or, in other words, where the criminality commenced. If any person undertook important duties, and death ensued in consequence of his having negligently or carelessly discharged them, the law directed that such person should be considered guilty of manslaughter. In this case it was for the jury themselves to say whether the explosion was accidental, or the result of carelessness. If it was one of those unforeseen casualties which necessarily attended all mining operations, then, however serious the consequences might have been, it would be their duty to return a verdict of accidental death; but, if they believed that it had arisen from the carelessness and negligence of the owner, manager, foreman, firemen, or any other person having duties to perform in the mine, it would be their duty to find a verdict of manslaughter, in order that the matter might be fully investigated elsewhere, and the supposed offenders tried for the offence. He (the coroner) here called attention to that portion of the rules of the Cymmer Pit by which the duties of the manager, and other officers of the colliery, were defined. The manager was required to take the responsible charge of the mine and works, and the direction of all persons employed in or about them. Full power was given to him, and he was required to carry out whatsoever he might consider necessary for safety, and for rendering effective the general and special rules. He was also to take care that there was a sufficient number of competent agents to superintend the mine, machinery, and workmen, and it was his duty to see that they clearly understood, and were attentive to, their respective duties. In addition, it was his duty to lay out the ventilation of the mine, to make due provision for removing all noxious gases, to take especial care that the general rules were attended to, and to see that the workmen were made acquainted with them, by causing them to be read over when desirable. It would be for the jury to say how far the duties thus defined had been performed by the manager. The coroner then proceeded to comment upon the facts of the case and the nature of the evidence. He believed that the evidence very strongly affected several of the persons holding responsible positions in the colliery. It was, however, for the jury to say how far the duties of those persons were distinctly defined, and whether or not they had been violated.

Before the summing up was brought to a close, the solicitor for Mr. Insole, the proprietor of the colliery, handed in the following document, which may be considered the defence of the persons entrusted with the management of the mine:—

"The manager maintains that he had a right to perform the duties of the 1st special rule by what he believed to be proper agents. Morgan Rowlands maintains that, on finding gas in a stall of a morning, all he had to do was to act under rule 14 (requiring that cross timbers, indicating danger, should be put up). David Jones had already done so. He also contended that the 20th rule (the rule requiring the overman to report to the manager, and the deputy to the overman, all accidents, dangers, or defects which occur in the mine) does not apply to merely finding gas in a stall of a morning, but only to such dangers as threatened some large district of the works, of sufficient importance as to render it necessary that the head manager should know. Rowlands maintains that, not being informed of the danger, there has been no rule broken by him."

The jury retired for the purpose of considering their verdict at a quarter past three o'clock, and returned at half past four.

The FOREMAN said: Seventeen of the jury are of opinion that the explosion in the old pit at Cymmer, which occurred on July 15, whereby Thomas Lewis and 113 other men lost their lives, was caused by the negligence of Jabez Thomas, the manager; Rowland Rowlands, the overman; and Morgan Rowlands, David Jones, and William Thomas, the firemen. They, therefore, find a verdict against those persons of manslaughter.

The dissentient jurymen was said to be now a fireman in the pit in which the explosion occurred.

The CORONER observed, that he did not think the jury could have come to any other conclusion.

Mr. OWENS, on behalf of the working colliers, thanked the coroner and Mr. Poulden, the Government Assessor, for the pains which they had taken in conducting the investigation, and this protracted enquiry was brought to a close.

COLLIERY ACCIDENTS.—Mr. Seymour Tremerehe has addressed the following letter to the *Times*:—"In your paper of Wednesday you say that 'Mr. Tremerehe's report, which is principally devoted to the question of justice as between master and man in the mining districts, and the mode of stopping the quarrel between the two, does not discuss this serious concomitant of mining labour' (the folly and recklessness of the colliery). 'Or enter into the subject of accidents, and the mode of preventing them.' I should be sorry to be thought to have neglected subjects of such serious importance to the mining population, upon whose condition it has been my duty to make reports annually to Parliament since 1844. In 1845 and 1846 I brought before the Secretary of State the urgent necessity that there was for appointing underground inspectors of collieries, to report upon the system of management pursued, and, by advice and suggestion in the first place, and ultimately by the exercise of certain powers, to lead to improvements wherever they were required for the purposes of health or safety. In the last-named year I was permitted to make an enquiry into the laws regulating mining inspection in France, Belgium, and Germany, and, upon my report to Parliament, a bill was passed enabling the Secretary of State to appoint underground inspectors. Their powers were by that Act judiciously limited, in order that experience might be gained in a matter entirely new in this country, and very difficult of application. Last year another Act was passed, giving extended powers to the inspectors, and requiring them to draw up special rules, after communication with the proprietors or managers of collieries, applicable to the conditions of each mining district, and to be enforced by the Secretary of State. The inspectors of collieries report their proceedings in all these matters of underground management to the Secretary of State. My efforts are directed to the encouragement and extension of whatever may appear likely to remove gradually those intellectual and moral defects in the mass of the colliery population to which you justly attribute the folly and recklessness which lead every year to the sacrifice of so many lives, and to so much consequent misery."

ATTEMPTED COLLIERY EXPLOSION.—Three men have been charged before the magistrates at Bridgend with having attempted to set the Cefn Colliery, worked by the British Banking Company, on fire. The prisoners were employed in the colliery, and one of them informed the manager that it was in a dangerous state, owing to the presence of fire-damp. The manager feeling satisfied that the ventilation of the pit was excellent, was much surprised at the announcement. In the course of conversation, one of the prisoners recommended that a shaft should be sunk to remedy the evil; his recommendation was, however, received with suspicion, from one of the prisoners being employed as contractor for the shafts which might be required in the colliery. After an investigation had been made by competent parties the pit was pronounced safe. Indeed, there was no gas in any part of the present workings; there was, however, a drift in a distant part of the pit, the entrance to which had been filled up and boarded, to prevent any communication with it. It was probable that a small quantity of gas might have accumulated there, but not in sufficient quantities to endanger the other portions of the pit. On the following day the three prisoners came up in apparent alarm, and informed the manager that they had narrowly escaped with their lives, in consequence of fire-damp. Competent persons having immediately visited the pit, discovered in the drift that a piece of fusee had been introduced for the purpose of communicating with gunpowder which had been deposited therein. An explosion of the gunpowder had actually occurred, but fortunately had not the intended effect, the gas being chiefly confined to the upper portion of the workings. There being other suspicious circumstances, the case was adjourned to allow time to get up the necessary evidence.

DREADFUL BOILER EXPLOSION.—At the mills of Messrs. Warburton and Holker, near Bury, a 60-horse power steam-boiler burst, completely destroying the engine-house, dye-house, and a warehouse, and carrying an iron flue, 18 ft. long, to the distance of 80 ft. Several lives have already been sacrificed and many more are placed in jeopardy. Some days previous the boiler yielded to the pressure of

steam, and the hands had to cease working at noon, that some temporary repairs might be done. A large portion of the premises is scattered in confused heaps. The exploded boiler, a double tubular one, 36 feet long and 9 feet diameter, was rent both longitudinally and transversely, the parts being torn asunder like brown paper. The counter flues, 3 ft. 9 in. in diameter, had not yielded, and so far as could be perceived, bore no indication of being uncovered with water. The boiler had a 5 in. safety-valve upon it, set, it is said, at 35 lbs., and a 6 in. one upon the junction-pipe of another boiler.

PREVENTION OF STEAM-BOILER EXPLOSIONS.—Mr. Wm. Routledge, of the Newbridge Brass Foundry, Manchester, has invented an apparatus for this purpose. It consists of an elbow pipe, which connects the furnace with the side flue, fixed just below the water level in the boiler; it can be applied to any kind of boiler, as all that is required is an opening into the side or centre flue. The pipe is perforated with a number of holes, about $\frac{1}{8}$ in. in diameter, so placed as to be subject to the immediate action of the furnace fire. In these holes are metal plugs, more or less fusible, according to the working pressure of the boiler. The moment the water in the boiler, from neglect or otherwise, is below the level, and leaves the pipe bare, the heat from the furnace acts upon the plugs, which melt, and the steam escaping through the holes relieves the pressure in the boiler, and speedily extinguishes the fire, thus preventing the possibility of the bursting of the boiler from want of water, or injury to it from the action of the fire upon the plates bare of water, which latter cause frequently results in ultimate accident and loss of life. By this invention, any neglect on the part of those in charge must be attended with immediate discovery. The experiment has been made at Manchester in the presence of several scientific gentlemen, and proved perfectly successful. The apparatus can be refitted with plugs, and the boiler be at work again in two or three hours. The expense of the apparatus is trifling, and within a limited time would, it is said, repay its original cost, from its acting as a powerful generator of steam.

STRUVE'S MINE VENTILATOR.—One of Mr. Struve's gigantic mine ventilators was started last week at the English Copper Company's Cwm Avon Collieries, where the late unfortunate explosion recently took place. The machine consists of two pistons, each 15 feet in diameter, capable of pumping 18,000 cubic feet of air per minute. The valve-works for the passage of the air through the machine equals 1200 superficial feet. The machine works most satisfactorily, the principle being such as must produce an irresistible effect as a scavenger and ventilator on the goaves and covering faces of any colliery it may be applied to. This machine forms the eighth application to fiery mines, and we think deserves to be noticed by the public generally at this moment, when the press is teeming with descriptions of terrible accidents from explosions of fire-damp.—*Scunsea Herald*.

RAILWAY ECONOMY—THE PERMANENT WAY.

One of the great objects of railway companies, from sad experience of the annual cost of the permanent way, has been to introduce a sleeper of wood or a road constructed entirely of iron, so as to lessen the heavy burthen which the yearly repairs have, and in some instances the periodical deterioration, thrown upon the revenue. We doubt whether railway proprietors are even at this moment, after the publication of the reports of so many shareholders' committees of investigation, cognisant of the actual outlay that has been incurred throughout the country for the reparation of permanent way; nor do we believe that it would be an easy matter for many of our railway managers, without a large amount of trouble, to ascertain what the expenditure under this head has been for their respective railways over a term of 10 years. The dividends on more than one line have been notoriously reduced, in consequence of unprepared or improperly prepared sleepers being laid down in the construction of the way; and we believe, if the Permanent Way Company, to whose labours for economising the cost of the original works and the repairs of railways we refer below, were to publish the facts within their own knowledge in reference to this matter, they would be not only conferring a great benefit upon our railway proprietary, but taking the best possible step to promote the extension and application of their own improvements.

On Monday, we were present, by invitation, at some exceedingly interesting and valuable experiments on the premises of the above company, Great George-street, Westminster, relative to the preservation of timber to be used as railway sleepers, telegraph signal posts, &c. The process of preservation is under Dr. Boucherie's patent, which we learn from official documents has been tested in France with the greatest possible amount of economical success. The English Permanent Way Company, who have done so much to reduce the cost of the "road," and secure safety of transit, have considered the fact when we say that, bitherto, the cost has been permitted of their series of experiments to test its commercial value.

We now a considerable number of trees operated upon by his process. A tank filled with a solution of sulphate of copper and water, with a pressure of about 14 lbs. on the inch only, was applied, and within two or three hours the majority (18 feet in length) had forced out of them 40 pints of sap, and after the lapse of four or five hours the flowing of the sulphate of copper was distinctly manifest by chemical test. The importance of acting upon the tubular structure of timber was shown to us in the result of some very interesting experiments that have been made under this process, where certain tubes have been so shut off as to make the portions exposed form a particular word, which word, by the application of a colouring liquor, can be carried from one end of the tree to the other, so that, wherever the tree has a rotten part, the word is distinctly seen in coloured letters.

An important feature in this process is that the apparatus can be fixed at a mere nominal sum (say, under 50/-), for the sleepers required for railway 200 miles in extent; and we see no reason why this small expense should not be incurred in the various timber-growing districts of Norway, where the timber might be operated upon immediately after it has been felled (when the sap can be easily removed), and transported to this country ready for use.

The Permanent Way Company deserve great praise for the enterprising spirit in which they have taken up the invention, and for the expense they have gone to in proving its great utility, and we trust that they and the patentees will meet with the success which the liberality of the one and the talent of the other richly merit. We had almost forgotten to state that the cost of impregnating the timber under this process is exceedingly small.

The Traffic Returns of Railways in the United Kingdom, for the week ending August 16, amounted to 486,753/-, and for the corresponding week of 1855 to 461,678/-, showing an increase of 25,075. The gross receipts of the eight railways having their termini in the metropolis amounted, for the week ending as above, to 211,692/-, and for the corresponding week of last year to 207,431/-, showing an increase of 4261.

The increase on the Great Northern Railway amounted to 1101/-; on the Great Western to 1842/-; on the London and North-Western to 1036/-; and on the London and South-Western to 1935/-: total, 5918/- But from this must be deducted 3071, the decrease on the Eastern Counties: 214/- on the London and Blackwall; 264/- on the London, Brighton, and South Coast; and 872/- on the South-Eastern: together, 1637/- leaving the increase as above, 2641.

The receipts on the other lines in the United Kingdom amounted to 275,061/-, and for the corresponding period of 1855 to 254,247/-, showing an increase of 20,814/- in the receipts of those lines, which added to the increase on the metropolitan lines, makes the total increase 25,075/-, as compared with the corresponding week of 1855.

At the Eastern Counties Railway meeting, to be held on Friday next, the report to be presented states that the total receipts are 628,939/- 9s. 4d., and the expenses, including interest upon mortgage debt, £2,463,416/- 19s. For the corresponding half-year the receipts were 596,609/- 2s. 6d., and the expenses 422,541/- 9s. 1d. After deducting payments to the Norfolk, Eastern Union, East Anglian, Great Northern, and Blackwall Railway Companies, interest on the Newmarket and Bury capital, the Newmarket line purchase, Harwich lease, and new works under agreement, &c., there remains a balance of 32,634/- 9s. 9d., as divisible amongst the ordinary shareholders of the company. This sum will enable the proprietors to recommend a dividend of 2s. per share, carrying forward 34,661/- 8s. 2d., which, if so decided, will be declared by the board, who have considered it desirable not to declare any dividend except authorised

THE BIRMINGHAM WAGON COMPANY (LIMITED).
Completely Registered, with Limited Liability, 12th May, 1856.

OFFICES.—38, BENNETT'S HILL, BIRMINGHAM.
Capital £100,000, in 10,000 shares of £10 each; £4 per share paid up. Future calls £1 each, not oftener than at intervals of three months, but shareholders may pay up if they desire it, and receive the full amount of dividend.

This company is paying dividends at the rate of 7½ per cent. per annum, besides providing for the maintenance, and making large reserves for the depreciation and augmentation of wagon stock.

Its affairs having been carefully audited by Mr. Quilter, under the direction of the Board of Trade, it has obtained a Certificate of Complete Registration, with Limited Liability. It presents, consequently, a perfectly safe and highly lucrative investment to either large or small capitalists.

Applications for the remaining unallotted shares will be received by Mr. N. LEA, sharebroker, Bennett's-hill; the bankers to the company, Messrs. ATTWOODS, SPOONER, MARSHALL, and Co., New-street; and the secretary, Mr. B. SMITH, 38, Bennett's-hill, Birmingham, from whom also prospectuses and any further information may be obtained.

THE MINERS' ELECTRO-CHEMICAL PROCESS,
FOR THE
REDUCTION AND SEPARATION OF METALS FROM THEIR ORES,
By Her Majesty's Royal Letters Patent.

PATENTEE.—Matt. French Wagstaffe, Esq., M.R.C.S., Walcot-place West, Lambeth; John William Perkins, Esq., F.C.S., Poplar-terrace, Poplar.

SOLICITOR.—Thomas Lee, Esq., 26, Moorgate-street.

CHEMICAL MANAGER.—John William Perkins, Esq., F.C.S.
Licenses will be granted to mine owners and mining companies for the adoption of the process on terms which may be obtained by application to the patentee, at No. 2, Poplar-terrace, Poplar; or to the solicitor, Thomas Lee, Esq., 26, Moorgate-street.

GALT-Y-FFRITH RHEDYN LEAD MINING COMPANY (LIMITED).—5000 shares at £10 each.

The MEMORANDUM OF ASSOCIATION NOW LIES FOR SIGNATURE at the offices of the company, and, when fully signed, will be registered under the Act which limits liability to shareholders. Parties holding certificates of shares are requested to sign it forthwith.

Applications may be made for the 400 shares unsold, at £3 deposit, following the report of the 17th July. No further calls for twelve months, and then, if required, not to exceed 2s. 6d. per share, and at intervals of three months.

OFFICES, 9, Austinfriars, Aug. 5, 1856.

WILLIAM EVANS, Sec.

TREBURGETT CROWAN CONSOLIDATED COPPER MINING COMPANY (LIMITED BY ACT OF PARLIAMENT).—SITUATE IN THE PARISH OF CROWAN, THE BEST MINING DISTRICT IN CORNWALL.

Capital £50,000, in 5000 shares of £10 each.—Deposit £5 per share. The old shares of £1 each in the Treburgett Consols Mine will be received in exchange, and on payment of the deposit of £5 per share.

DIRECTOR.—John Pace, Esq., 9, Austinfriars.
BANKERS.—Unity Bank, Unity-buildings, Cannon-street.
SOLICITORS.—Messrs. Baker and Knight, 34, Lime-street.
BROKER.—Peter Watson, Esq., 57, Threadneedle-street.

SECRETARY.—Mr. William Evans.

OFFICES.—No. 9, AUSTINFRIARS, LONDON.

Applications are yet required for the 3000 shares unsold; the whole must be applied for prior to any allotment being made.

The capital of the company is £50,000, divided into 5000 shares of £10 each, whereupon a deposit of £5 per share is to be paid, and the remainder called for as required for the mining operations, by instalments not exceeding 2s. 6d. per share, and that at intervals of not less than three months.

Prospectuses may be obtained at the offices of the company.

WILLIAM EVANS, Sec.

FORM OF APPLICATION FOR SHARES.

To the Directors of the Treburgett Crowan Consolidated Copper Mining Company (Limited).

GENTLEMEN.—I request you to allot me shares in your company, of £10 each, on which I enclose you a deposit of £1 per share, and hereby undertake to accept such shares, or any less number, and to pay the further sum of £4 per share on allotment, and the further calls as required, up to £10 per share, subject to the provisions of the Act of Parliament which limits liability to shareholders.

I am, Gentlemen, your obedient servant,
Name in full.....
Residence.....
Profession or business.....

GWINEAR CONSOLS COPPER AND SILVER MINING COMPANY (LIMITED).

To be Incorporated under the Joint-Stock Companies' Act, 1856, whereby the liability of the shareholders will be limited to the amount of their shares.

Capital £15,000, in 3000 shares of £5 each.

BANKERS.—The Unity Joint-Stock Banking Company (Leicester-square Branch), 1, New Coventry-street.

SOLICITOR.—James H. F. Lewis, Esq., 28, Essex-street, Strand.

TEMPORARY OFFICES,—2, UPPER WELLINGTON STREET, STRAND.

This extensive and valuable mine is situated in the parish of Gwinear, in the county of Cornwall, contiguous to the western boundary of Camborne—one of the richest mineral districts in the world.

The stratum is congenital for copper, consisting of a light clay-slate; and the granite range is within half-a-mile of the mine, which contains seven known lodes, also two cross-courses and an elvan course. The lodes, all of which are intersected by an adit taken up north of the set, are considered to be continuations of the well-known lodes in Dolcoath (which within half a century yielded nearly £3,000,000 of mineral), and are composed of gossan, prian, fluor-spur, flocan, spots of copper, lead, muriatic, and rich black and yellow ore, their size being respectively from 2 to 4 ft. wide.

Several piles of black and yellow ore, mixed with gossan of an unusually rich description, have been recently raised west of the engine-shaft. The adit at that shaft is about 8 fms. deep, and has been driven on the course of the lodes upwards of 100 fms., at which distance it is deeper, on account of the rise of the ground.

An adit, taken up in a set to the north, called Roseworthy Wood Adit, has been driven to the boundary of this mine, where it is 40 fms. below the surface; and the prosecution of that adit will intersect all the lodes at from 40 to 50 fms. deep, and about 400 fms. west of the engine-shaft.

A most important and valuable feature of the Gwinear Consols is that the gossan, of which there is an abundance, is richly impregnated with silver, the result of an assay made by a scientific and eminent assayer showing an average of 40 ozs. of pure silver to the ton.

The peculiar advantages presented by the Gwinear Consols are—that it is situated in one of the richest mineral districts in Cornwall; is in immediate proximity to and surrounded by numerous mines of known productive character; that the samples of ore raised are uncommonly rich; that the yield of silver from the gossan will return an early profit; and that the formation of the set and the adits already driven, aided by the prosecution of the Roseworthy Wood Adit, render the mine capable of being economically and efficiently worked without the use of expensive machinery.

The promoters of the company, convinced that a comparatively small outlay will realise the expectations held out, and concurred in by the several mining captains and the mineral surveyor by whom the mine has been inspected and reported upon, confidently submit the undertaking for public consideration and approval, as presenting well-grounded inducements for the profitable investment of capital, and the certainty of highly remunerative returns.

Since the preceding portion of this advertisement was written, a report has been received from the mine, stating that a new lode of black and yellow copper ore had been cut in the adit level, which passes several hundred fathoms through the set.

The capital of the company is £15,000, divided into 3000 shares of £5 each; £2 to be paid at the time of subscribing, and the balance called for by instalments of £1 each, with one month's notice of each call.

The company will be incorporated under the provisions of the Joint-Stock Companies' Act, 1856, whereby the liability of the shareholders will be strictly limited to the amount of their respective shares; and be under the direction of a board of directors, to consist of not less than three nor more than five members; and the regulations framed for the control and management of the undertaking will empower the board to commence the mining operations before the whole of the proposed capital be subscribed, and when in their discretion they shall deem it expedient.

Applications for prospectuses and shares may be made to the directors, at the office of the company, 2, Upper Wellington-street, Strand; but no application will be entertained unless a deposit of £1 for each share applied for be previously made with the bankers of the company, or be remitted in the letter of application.

S L A T E.—The BANGOR ROYAL SLATE COMPANY have now on hand a large assortment of ROOFING SLATES, BLUE and GREEN, of the usual sizes, which they are prepared to SUPPLY ON THE USUAL TERMS, for shipment from their depot at Bangor, or to transmit by railway; also, SLABS of all sizes. Orders to be addressed to Mr. EDWARDS, manager, Royal Slate Quarries, Bangor.

Works published at the MINING JOURNAL office, 26, Fleet-street, London:

IRON MANUFACTURE OF GREAT BRITAIN. By W.M. TRUMAN. £2 2s. PROPERTIES AND PRICES OF THE METALS CHIEFLY USED IN THE ARTS AND MANUFACTURES. Large chart, on cloth and rollers, 21s.; plain sheet, 15s.

PRACTICAL TREATISE ON MINE ENGINEERING. By C.G. GREENWELL. In one vol., half-bound, £2 15s.; whole bound in Morocco, £3 10s. In two vols., half-bound, £3 3s.

GEOLGY AND MAGNETISM. By EVAN HOPKINS. 16s.

AN ILLUSTRATED INTRODUCTION TO HOPKINS'S GEOLOGY AND MAGNETISM. 4s.

GEOLGY AND MINING—FOUR LECTURES BY G. HENWOOD. 2s. 6d.; by post, 3s.

A BATTLE WITH THE BASALTS: being an Attempt to Deliver the Chief or Primary Crystalline Masses from Plutonic Dominion. By JOSEPH HOLDSEWORTH, M.G.S.F. 1s.

GOLD ROCKS OF GREAT BRITAIN. By JOHN CALVERT. 10s. 6d.

WINNING AND WORKING OF COLLIERIES. By MATTHIAS DUNN. 12s. 6d.

SUPPLY OF WATER IN SWANSEA. By MICHAEL SCOTT. 10s.

HORSE POWER OF CORNISH STEAM-ENGINES. By J. DARLINGTON. 6s.

INVENTIONS, IMPROVEMENTS, AND PRACTICE, OF A COLLIERY ENGINEER AND GENERAL MANAGER. By BENJAMIN THOMPSON. 6s.

PROGRESS OF MINING IN 1855. By J.Y. WATSON, F.G.S. 1s.

STATISTICS OF THE MINING INTEREST FOR 1855. By W.H. CUILL, Esq. 6s.

THE COST-BOOK-TAPPING'S PRIZE ESSAY—with NOTES AND APPENDIX. 5s.

THE COST-BOOK-TAPPING'S PRIZE ESSAY. 6d.

THE COST-BOOK SYSTEM: ITS PRINCIPLES & PRACTICE EXPLAINED. 6d.

BRITISH MINES CONSIDERED AS A MEANS OF INVESTMENT, with particulars of the principal Dividend and Progressive Mines in England and Wales, for 1855. By J.H. Murchison, F.G.S. Fourth Edition. 2s. 6d.; by post, 4s.

METROPOLITAN SCHOOL OF SCIENCE, APPLIED TO MINING AND THE ARTS.

DIRECTOR.—Sir RODERICK IMPEY MURCHISON, D.C.L., M.A., F.R.S., &c.

During the Session 1856-57, which will COMMENCE on the 1st of October, the following COURSES OF LECTURES and PRACTICAL DEMONSTRATIONS will be given:

1. CHEMISTRY	By A. W. HOPMANN, LL.D., F.R.S., &c.
2. METALLURGY	By JOHN PERCY, M.D., F.R.S.
3. NATURAL HISTORY	By T. H. HUXLEY, F.R.S.
4. MINERALOGY	By WASHINGTON W. SMITH, M.A.
5. MINING	By A. C. RAMSAY, F.R.S.
6. GEOLOGY	By ROBERT WILLIS, M.A., F.R.S.
7. APPLIED MECHANICS	By G. G. STOKES, M.A., F.R.S.
8. PHYSICS	By G. G. STOKES, M.A., F.R.S.

INSTRUCTION IN MECHANICAL DRAWING, by MR. BINNS.

The fee for matriculated students (exclusive of the laboratories) is £30 for two years, in one payment, or two annual payments of £20.

Pupils are received in the Royal College of Chemistry (the laboratory of the school), under the direction of Dr. Hoffmann, at a fee of £10 for the term of three months. The same fee is charged in the metallurgical laboratory, under the direction of Dr. Percy. Tickets to separate courses of lectures are issued at £2, £3, and £4 each.

Officers in the Queen's or the East India Company's service, acting mining agents and managers, may obtain them at half the usual charge.

Certified schoolmasters, pupil teachers, and others engaged in education, are admitted to the lectures at reduced fees.

H.R.H. the Prince of Wales has granted Two Exhibitions, and others have also been established.

For a prospectus and information, apply at the Museum of Practical Geology, JERMYN-STREET, London.

TRENTHAM REEKS, Registrar.

SALE OF IRONFOUNDRY PREMISES; COTTAGES; MINING, CLAY WORK, RAILWAY, AND SLATE QUARRY SHAKES, &c.

M R. W. F. CONGDON WILL SELL, BY AUCTION, at Dunn's Hotel, St. Austell, on Monday, the 1st day of September next, by Five o'clock in the afternoon, or such other lots as may be agreed on at the time of sale, and subject to such conditions as will be then and there produced, the under-mentioned PROPERTY, viz.:—

Lot 1.—For the remainder (except the last day) of a term of 99 years, granted by indenture of lease, dated 25th March, 1846, and now determinable on the dropping of two lives, aged respectively about 17 and 14 years, under and subject to the yearly rent of £52 10s. for the first 21 years of the said term, and £70 for the remainder thereof, all those PREMISES, situate in the town of St. Austell, in the county of Cornwall, known as the HIGHER FOUNDRY, for many years past used as an iron-foundry, comprising a very spacious yard, green sand shop, dry sand shop, boring-mill shop, pattern-making shop, casting fitting shop, cleaning shop, moulding shop, counting-house, and several sheds, with a never-failing supply of water. Also, all that POLICY OF ASSURANCE for £700, on the life of one of the above-named lives, in the Scottish Equitable Life Assurance Office, granted on the 20th July, 1854, subject to the yearly premium of £12 19s.

Lot 2.—ONE-THIRD PART, or SHARE, of and in all that CLAY WORK, called CARNSMERRY CLAY WORK, situate in the said parish of St. Austell, with the plant and materials thereon. The set is for 21 years from 1st of January, 1855, at £2 6d. per ton dues for clay, and 1s. 3d. for mica; a large quantity of clay has been already raised, and two stoves are now being worked. The clay is best seconds, the quality improving as the work proceeds. The carriage is easy, the work being only about ¼ mile from the railway, whence clay is taken to Par at 2s. 11½d. per ton.

Lot 3.—ONE-THIRD PART, or SHARE, of and in all that PIECE or PARCEL OF LAND, being part of the TENEMENT of CARNSMERRY, in the said parish of St. Austell, containing 16a., 3s., 2p., with the buildings and erections thereon, comprising a cottage, now in the occupation of Walter Bray, at the yearly rent of £2, and several drying sheds for clay, held for the remainder of a term of 70 years, granted by indenture of lease, dated 23rd March, 1855, subject to the yearly rent of £2 15s. N.B. This high rent is not payable during the working of the above-named clay work.

Lot 4.—ONE-THIRD PART, or SHARE, of the CLAY on the said work, the whole being about 600 tons.

Lot 5.—34 SHARES in SOUTH CRENNER MINE.

Lot 6.—25 SHARES in ST. AUSTELL CONSOLS MINE.

Lot 7.—50 SHARES in BASSET GRAZE MINE.

Lot 8.—25 SHARES in PENDARVES AND ST. AUBYN MINE.

Lot 9.—100 SHARES in EAST CORNWALL SLATE QUARRY.

Lot 10.—5 SHARES in CORNWALL RAILWAY.

Lot 11.—For the remainder of a term of 60 years, of which about 41 years are now unexpired, under and subject to the yearly rent of £29, all those THREE COTTAGES and GARDENS, situate near the Old Western Bridge, in the town of St. Austell, now in the occupation of Mr. Frank Gunnome and others.

Lot 12.—For the remainder (except the last day) of a term of 99 years, now determinable on the dropping of two lives, aged respectively about 17 and 14 years, under and subject to the yearly rent of £1 17s., all that SMALL PLOT OF GROUND and WATER-COURSE, situate at Gover, in the said parish of St. Austell. The late proprietor intended to have erected a bone mill on this lot, for which it is excellently adapted.

For further particulars and to view, apply to the auctioneer; to Mr. J. J. GUNNOM, executor of the late Mr. J. Hodge; or to Messrs. COOKE, SONS, and SHILTON, solicitors, St. Austell. Dated August 15, 1856.

IMPORTANT SALE OF COLLIERY MATERIALS AT CASTLE EDEN NEW WINNING, IN THE COUNTY OF DURHAM.

M R. GEORGE HARDCASTLE is honoured with a commission to sell, BY PUBLIC AUCTION, on Monday, the 1st of September, 1856, at the NEW WINNING, near CASTLE EDEN, the WHOLE of the large and valuable COLLIERY PLANT, consisting of THREE very powerful STEAM-ENGINES, SIXTEEN BOILERS, THREE SETS OF PUMPS, SPEARS, SHEAR-LEGS, &c.; catalogues of which will be issued in due course.

Sunderland Sale Offices, Aug. 14, 1856.

MADELEY IRON AND COAL WORKS, STAFFORDSHIRE.

STEAM-ENGINES, BOILERS, LOCOMOTIVE ENGINES, WAGONS, IRON FURNACES, &c.

MESSRS. T. M. FISHER AND SON WILL SELL, BY AUCTION, on Wednesday, Thursday, and Friday, the 10th, 11th, and 12th days of September, 1856, on the premises, four miles from Newcastle-under-Lyne, and about two miles from the Madeley Station, on the London and North-Western Railway, by order of Thomas Firminstone, Esq., the owner, in consequence of his discontinuing the business (sale to commence each day punctually at Eleven o'clock in the forenoon), TWO large IRON FURNACES, with wrought-iron air-lift, air tube, blowing apparatus, valve, and pipes, &c.; blowing cylinder, 73 in. diam., 6 ft. 6 in. stroke; one condensing

PATENT FURNACES AND STEAM BOILERS.— LEE STEVEN'S FURNACES PREVENT SMOKE, ECONOMISE FUEL, INCREASE STEAM, extend the flame through the flues, and are easily and safely adapted to any evaporative or heating purpose. Official reports, working drawings, accumulating hundreds of references, and other practical information, at No. 1, Fish-street-hill, City, where particulars are also given of LEE STEVEN'S PATENT SAFETY STEAM BOILERS, marine and land.

GARDNER'S PATENT STEAM GENERATOR AND SMOKE CONSUMER produces MORE STEAM, with LESSENED CONSUMPTION OF FUEL, and ENTIRE REMOVAL OF SMOKE. These patented inventions are highly recommended for their simplicity, durability, and great economy. They are self-acting, and have no moving parts, therefore require no external aid. They are applicable to all furnaces, locomotives, marine engines, ovens, pottery and other kilns, common fires, kitchen ranges, hall and haters' stoves.

Applications to be made to the patentee, 24, Norfolk-street, Middlesex Hospital; to Messrs. BURBIDGE and HEALY, 118, Dorset-street, Fleet-street; or to Z. D. BEARY, Albion Works, Wilton-road, Finsbury.

Testimonials, &c., may be seen upon application.

OVERLAND ROUTE.—STEAM TO INDIA AND CHINA, &c., VIA EGYPT.—THE PENINSULAR AND ORIENTAL STEAM NAVIGATION COMPANY BOOK PASSENGERS AND RECEIVE GOODS AND PARCELS for the MEDITERRANEAN, EGYPT, ADEN, BOMBAY, CEYLON, MADRAS, and CALCUTTA, by their mail packets leaving Southampton on the 4th and 20th of every month; and for CHINA and the STRAITS, by those of the 4th of the month.

For further particulars, apply at the company's offices, No. 122, Leadenhall-street, London; and Oriental-place, Southampton.

STEAM COMMUNICATION TO AND FROM ABERYSTWITH AND LIVERPOOL, CALLING AT PORTMADOC; AND ABERYSTWITH AND BRISTOL, CALLING AT LLANELLY.

The CAMBRIAN STEAM PACKET COMPANY (LIMITED), until the completion of the new iron screw steamer, the "Pilnlimon," now building for them, and unless prevented by any unforeseen occurrence, intend DISPATCHING, with goods and passengers, the powerful SCREW STEAMER "REGALIA," 200 tons burthen, or some other vessel suit-able for the trade, on the days and hours hereunder mentioned:

Friday	August 1,	leave Liverpool	for Aberystwith, at 11.29 morn.
Saturday	2,	Aberystwith	Bristol
Monday	4,	Llanelli	Bristol
Wednesday	6,	Bristol	Aberystwith
Thursday	7,	Llanelli	Aberystwith
Friday	8,	Aberystwith	Liverpool
Saturday	9,	Portmadoc	Liverpool
Tuesday	12,	Liverpool	Aberystwith
Wednesday	13,	Aberystwith	Liverpool
Friday	15,	Liverpool	Aberystwith
Monday	18,	Portmadoc	Aberystwith
Tuesday	19,	Aberystwith	Bristol
Wednesday	20,	Llanelli	Bristol
Friday	22,	Bristol	Aberystwith
Saturday	23,	Llanelli	Aberystwith
Monday	25,	Aberystwith	Liverpool
Tuesday	26,	Portmadoc	Liverpool
Thursday	28,	Liverpool	Aberystwith
Friday	29,	Portmadoc	Aberystwith

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9000 South Tamar (silver-lead), Beerfries*....	11. 6s. 6d.	3 1/2	0 2 6	2056 Franklyn (cop.), Tavistock	2	1		12000 W. Wh. Virgin (tin), Sancrene	2 1/2	3 1/2	
256 South Tolgas (copper), Redruth	16	120	2 12 6	2057 Franklyn (cop.), Tavistock	2	1		60000 Wheat Agar (copper), Illogan	15	25	
496 South Wheal Frances (cop.), Illogan*....	18 1/2. 18s. 9d.	320	206 5 0	2058 Franklyn (cop.), Tavistock	2	1		2500 Wheat Bray (copper), Alturnan	1		
1024 Spears Consols (tin), St. Just, Cornwall	3 1/2	4 1/2	8 0 0	2059 Franklyn (cop.), Tavistock	2	1		539 Wheat Carne (tin), St. Just	9 1/2		
280 Spears Moor (copper), St. Just	23 1/2. 7s. 8d.	3 1/2	0 15 0	2060 Franklyn (cop.), Tavistock	2	1		1024 Wheat Constant (silver-lead)	4	4 1/2	
1024 St. Aubyn and Grylls (cop., tin), Breage	31. 17s. 8d.	—	0 17 6	2061 Franklyn (cop.), Tavistock	2	1		4096 Wheat Creboc (cop.), Tavistock	4		
94 St. Ives Consols (tin), St. Ives	80	100	888 0 0	2062 Franklyn (cop.), Tavistock	2	1		1024 Wheat Cupid (copper), Redruth	12	12	